Chemical Week

July 26, 1952

Price 35 cents

Antihistamine lode peters out; here's what's behind sag in over-the-counter sales . . . . . p. 14

Prime insecticide worry: determining residues; novel technique makes it easy . . . . . p. 31

Now you can print on polyethylene; ink-makers clear old, sales-curbing hurdle . . . . . p. 39

Do dwindling glycerine stocks presage higher prices, tougher competition? . . . . . p. 51

CW Camera follows raw-material-to-tablet manufacture of iodine-based water purifier . . . . p. 54

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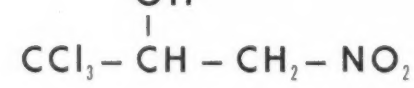

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Chemical Week

Volume 71 Number 4

July 26, 1952

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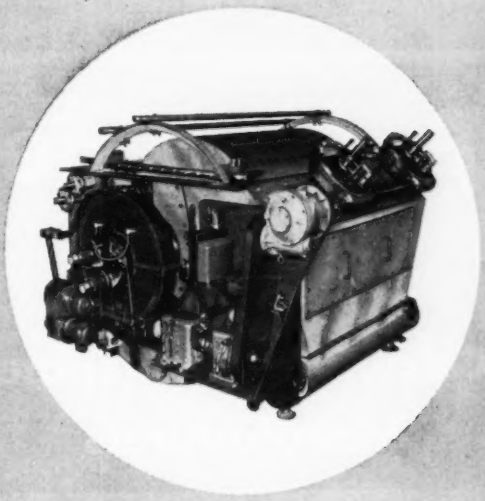

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OPINION....

Oxygen Future

TO THE EDITOR: I have read with interest "On-the-Spot Oxygen in the Spotlight" (June 28).

The production of high purity oxygen suitable for metal fabrication is already a very large tonnage industry. Few people realize that the output was close to a rate of 3,000 tons per day immediately prior to the present steel strike. New merchant plants and captive plants are being built.

The big future production of oxygen will be of the relatively pure type (90 to 95% oxygen content, called "tonnage oxygen") and a cheaper product for use as an oxidant in chemical synthesis, in metallurgical processes and in the manufactured gas industry. The rate at which oxygen production will be adopted will probably be in that order as far as one can foresee at present.

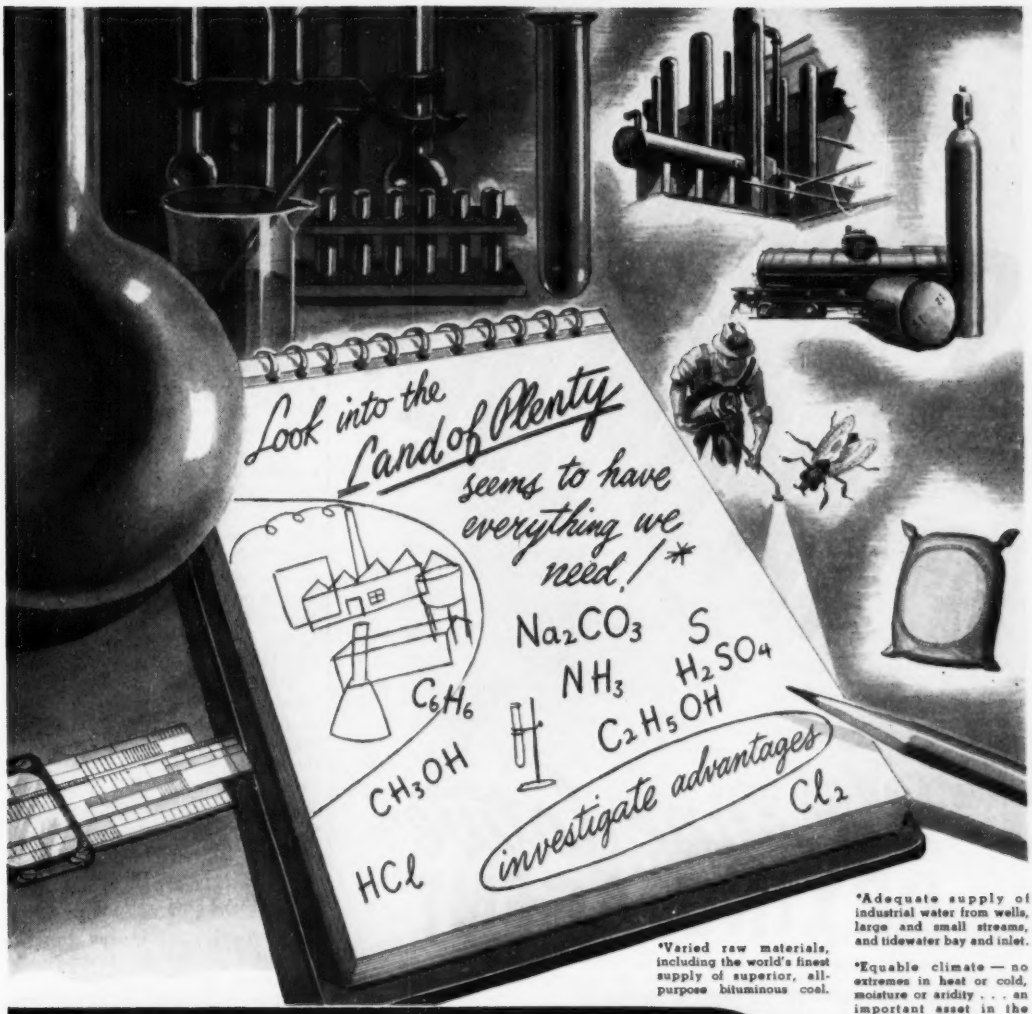
Although the chemical industry is progressing more rapidly in this field, it is of interest to note that the manfactured gas industry was a pioneer in making studies of the use of oxygen for the production of town gas. In 1925 a committee of the American Gas Association reported the results obtained at the Worcester Gas Light Co. on the use of oxygen instead of air in water gas machines. The selected oxygen cycle (Jeffries-Norton) was faulty and the project was abandoned.

Some members of the gas industry still continued to be hopeful that oxygen would become available at a sufficiently low cost to be useful, and in 1944 the committee was revived and has continued active since then.

The objectives . . . were to follow and report on any advances in the art of oxygen production as well as the development of methods for its use in gas manufacture.

In recent years luncheon conferences have been held at the May meetings for the informal discussion of this subject, the object being to bring manufactured gas utility production men into contact with representatives of firms offering equipment for producing oxygen.

The earlier round-table conferences were somewhat disheartening because those present seeking information were chiefly men employed by the chemical industry rather than representatives of the gas industry. However, they brought new blood into the gas industry and the chemical industry gained valuable information. Last May the subject began to take hold with the gas men as indicated by a marked increase in their attendance.



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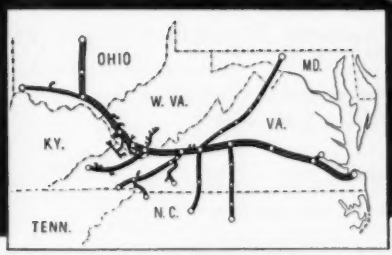

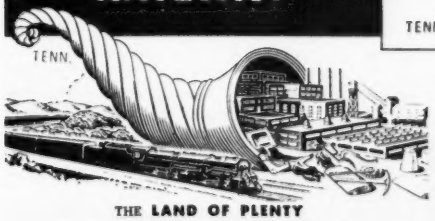

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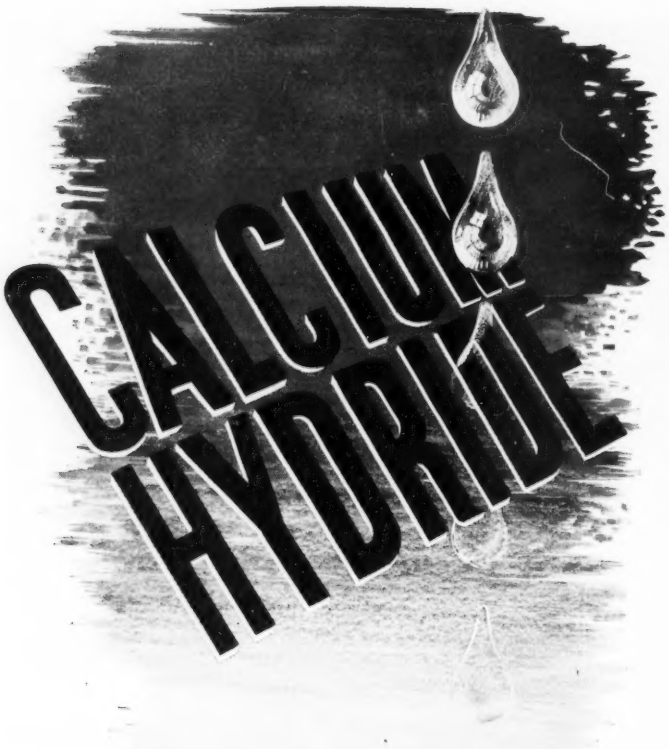

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OPINION . . . . . .

There are many technical and economic problems peculiar to an industry as old as gas manufacturing to be solved, acceptance will be slow but the ultimate use of oxygen appears to be inevitable.

The hope is that a relatively high heating value gas (800-900 BTU) can be made from coal and it appears that oxygen will be essential for this purpose.

Plant capacities suitable for the gas industry should probably range from say 25 tons to 50 tons per day of 95% oxygen. These sizes are substantially smaller than those now being planned for the chemical industry and production costs will be correspondingly greater.

The prime requisite is to bring oxygen "down to the ground," physically and price-wise.

In order to complete the picture you should have mentioned other firms offering oxygen production equipment for sale, such as Blaw-Knox Construction Co.; Hydrocarbon Research, Inc.; Spaco (Canadian Liquid Air Co.); Stacey Bros. Gas Construction Co.; and Foster Wheeler.

These companies as well as others listed in your discussion . . . have been reporting each year their estimated plant and operating costs to the American Gas Association as summarized so far by Prof. C. C. Wright of Pennsylvania State College in his annual reports.

C. R. Downs
Consulting Chemist
and Chemical Engineer
New York, N. Y.

Many thanks Reader (and oxygen authority) Downs for a valued extension to our round-up of what's going on in oxygen, what the trend is, what's ahead.

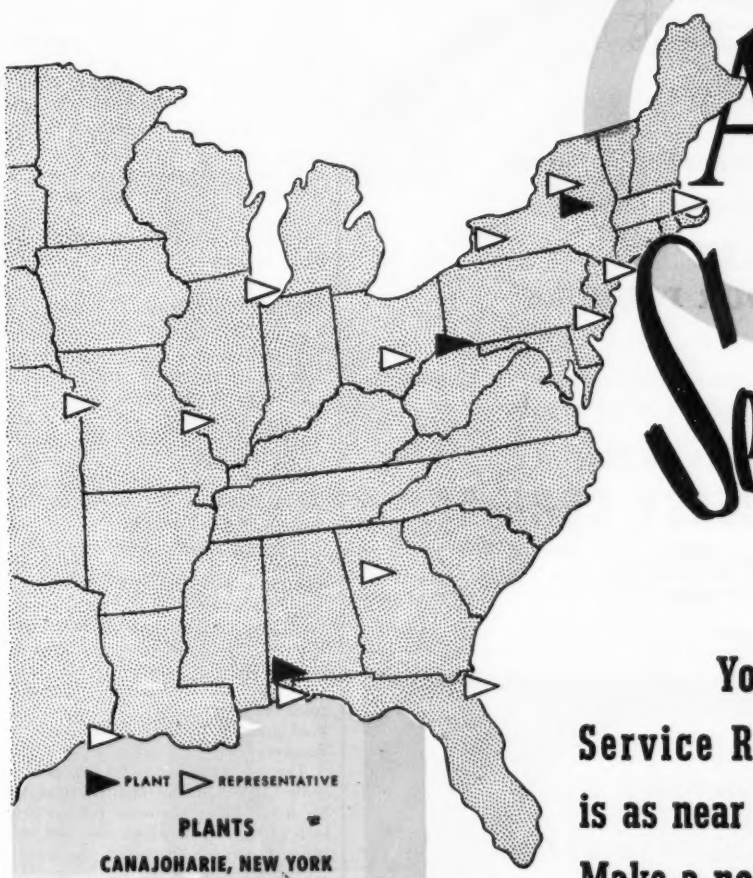
Although many companies have paid a good deal of attention to tonnage oxygen for steel production and kindred operations, few have been conscious of the potentialities in the gas manufacturing field.—Ed.

We Bight, Inside Strait

To The Editor: "*Memo to business statisticians:* With the tarpon biting invitingly in the Florida straights . . ." —*Chemical Week, July 5, p. 13.*

Wait a minute, now, let's get this strait. If a channel connecting two bodies of water is to be called a *straight*, I suppose a fellow is acting in a perfectly strateforward manner when he prays for a jack to fill an inside strait.

Or perhaps an inside straight was what you were talking about, although, if my information on ichthy-



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OPINION . . . . . .

ology is strait, the tarpon, being a salt-water fish, would be more likely to be biting in an outside straight, which is sometimes called a bight.

At any rate, please set me strait about the Florida straights.

ALLAN L. PERCY
Advertising Manager
Fansteel Metallurgical Corp.
North Chicago, Ill.

P.S. My secretary says that only a sucker would bight on an inside strait.

Reader Percy (and his secretary) are quight rite about bight, string-strait about straight.—ED.

Aerosol Shaves

TO THE EDITOR: We were indeed happy to see . . . the news article on aerosol shaving cream ("Shave in a Can", July 5). As you indicated, this certainly does appear to be another big field of development for aerosol-type packaging.

We believe that some of those companies interested in aerosol shaving creams might be misled by a bit of misinformation in regard to the propellent part of these formulations. Although some straight Freon-12 has been used in a very few commercial packages, by far the widest use has been of Freon-12-Freon-114 propellent solution . . . which was especially designed . . . for the most desirable foam structure along with a proper final pressure to meet the ICC specifications.

The use of the lower pressured 114 with 12 permits this final pressure to be less than 40 pounds per square inch gauge . . . therefore does not require the increased cost of the specification 2P can.

We think it will be a service to the industry to bring this to the attention of your readers . . .

EDMOND G. YOUNG
Sales Development
Kinetic Chemicals Division
E. I. Du Pont de Nemours & Co. Inc.
Wilmington, Del.

Thanks, Reader Young, CW mentioned, of course, Freon-12, Genetron-12, sulfur dioxide and carbon dioxide as among the principal propellents that have been used, neglected to include the 12-114 mixture—ED.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

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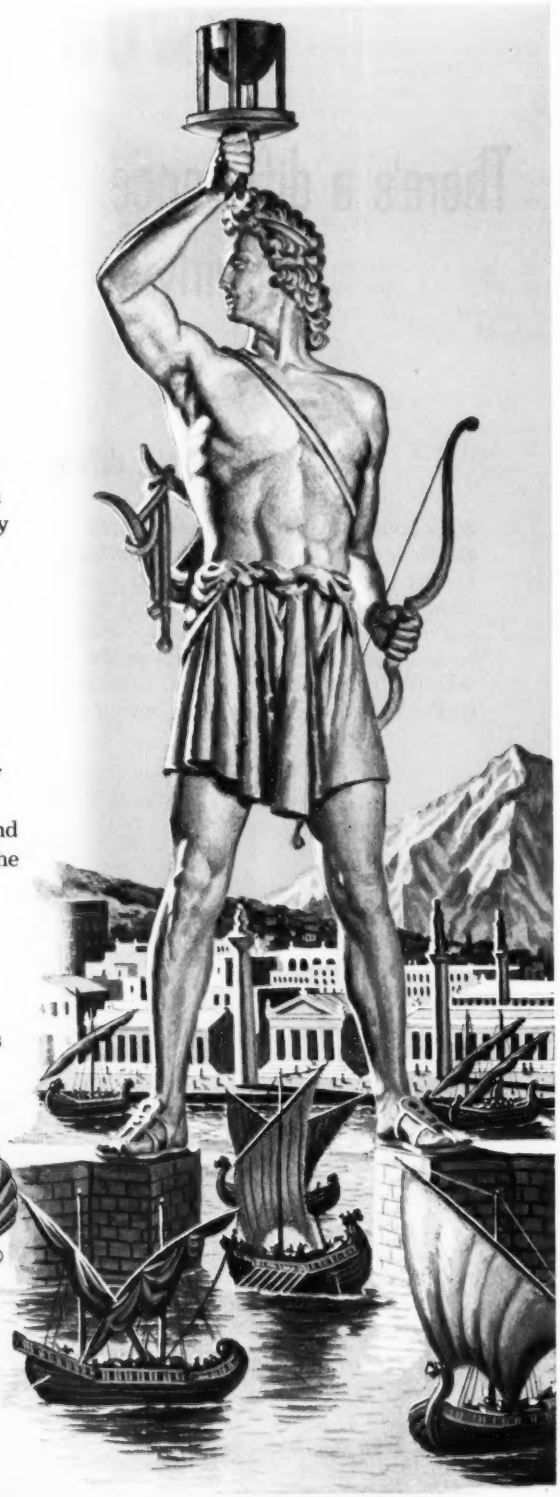

ONE OF THE WONDERS of the ancient world was the "Colossus" of Apollo, a 120-foot high statue that straddled the entrance to the port of Rhodes. Through the legs of Colossus passed ships of many nations, their courses set for exploration and new trade.

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NEWSLETTER

Close to $1 billion's worth of DPA-certified chemical plant is now in place. The actual figure at the end of June was $943,324,000, compared with $749,568,000 at the end of March and only $594,560,000 at the end of last year.

But a lot of this expansion isn't complete yet. Corresponding values of finished plants at quarters' ends were $345,842,000; $179,980,000; and $112,671,000.

Over half (53%) of planned alkali and chlorine expansion is now in place. Industrial organics is the category farthest along, with 64%. Synthetic fiber capacity is 41% in place, and industrial inorganics are trailing with 29%.

Is chlorophyll a chemical or a plant extract? That's what the U. S. Bureau of Customs would like to know, and it's now taking written data, views and arguments to guide its eventual decision.

What the Bureau decides is of considerable moment to importers of the material. It is now imported under Paragraph 38 ("extracts and preparations of vegetable origin used for dyeing, coloring, staining or tanning") at an ad valorem duty of 7½%. But since the water-soluble forms are "chiefly used for deodorizing and . . . theapeutic purposes," the Bureau thinks that Paragraph 5 ("chemical compounds") is perhaps more applicable, in which case the duty would be 12½% ad valorem.

No hearings will be held, but firms engaged in the business are making sure they submit their arguments before the Aug. 11 deadline.

Another unsure agency is the USDA's Agricultural Research Administration, which has backtracked to some extent on its original recommendation of soil conditioners.

Now it advises farmers and home gardeners to use the materials at first only on an experimental basis. ARA suggests that only "small quantities be purchased until the grower is convinced by experience that better soil conditions gained from their use are worth the cost."

Colorado's coal fields are being eyed by Union Carbide as a possible site for a multimillion-dollar coal depolymerization plant.

Three Carbide officials are now out there, are being accompanied on a tour of the fields by the state coal mine inspector.

Eager to attract this chemical venture, the State of Colorado hopes its coal and other factors will win the plant-site battle.

Canadian chemical men are happy about the outcome of the Republican convention here. Their interest: exports to the U.S.

They reason that Eisenhower, familiar with and sympathetic to problems of foreign nations, will promote foreign trade. The same, they think, will be true of the Democratic nominee. But they make no bones about their fear that Taft—or more specifically, his influential Midwestern backers—would have thrown up insurmountable tariff barriers had they been put in the saddle, first in July, later in November.

Alberta oil is one factor behind Canada's interest in U.S. trade policies. Experts there foresee doubled oil production within three to five years. That will mean 400,000 bbl. per day—Canada's current needs.

But the catch is that it's cheaper to import oil for use in Eastern Canada. Hence it will still be necessary to find markets for all of the Alberta production.

Canadians are closely following U.S.-Venezuelan tariff talks. There's a possibility of cuts in most-favored-nation tariffs from 21¢ to 5¼¢ a barrel—and that would broaden Canada's market area here.

There's been a lot of labor news in the past few months. One gets the impression that every other chemical plant is on strike.

Government figures point up labor turmoil. In the Office of Defense Mobilization's latest quarterly report, Acting Director John R. Steelman cites over-all industrial statistics showing that more man-days were lost in June than in any month since World War II.

During 1946 strike losses averaged close to 10 million man-days a month. The years 1947-1951 were comparatively peaceful, losses fluctuating between 1 and 4 million. (Last December's 1 million was the low point.)

But this year losses have mounted steadily each month, slowly during the first quarter, rapidly during the second to 11½ million in June.

There's no question but that strikes are plentiful—and there's usually only one inevitable consequence of settlement: higher wages.

But the first dribble of half-year reports proves one thing: Wherever higher wages are coming from, they can't come out of profits.

Diamond Alkali's sales were almost the same as last year's (down 0.6%) but net nosedived 13.6%. (Actual figures are $38,738,466 vs. $38,959,467; $2,948,195 vs. $3,412,134.)

Hercules Powder's sales fell from $110,671,768 to $91,724,153. Net profit fell $6,585,036 to $5,882,580.

Ferro Corp.'s sales dropped off from $20,540,768 to $18,990,630; but the profit picture showed a precipitate drop from $1,287,217 to $673,634.

Even higher sales ($61,000,069 vs. $47,416,125) couldn't turn profits upward for Mathieson Chemical. Net slid from $5,569,154 to $5,518,016.

Another sales gainer, Plough, Inc. ($8,930,000 vs. $8,446,000), had similar profit luck ($290,400 vs. $300,000).

American Potash & Chemical's sales and profits both declined from last year ($8,604,046 vs. $9,357,523; $916,660 vs. $1,173,918).

Rohm & Haas's sales fell from $58,972,000 to $52,712,000, and net was sliced over a third, from $4,040,000 to $2,553,000.

Heyden Chemical's sales dropped from $15,767,048 to $10,662,396; and profits suffered a cut from $1,481,404 to $636,806.

The International Materials Conference doesn't see eye to eye with Freeport Sulphur's Williams (see p. 49).

Rather than a balanced supply-demand, IMC sees a need during the second half of 1952 for 3,830,000 long tons of sulfur; but production probably won't exceed 3,200,000 tons.

According to its allocations, the U.S. will use 2,307,000 tons during the period, will export 465,000 tons.

Another contender for nylon business seems certain in view of Allied Chemical & Dye's newly granted certificate for a $23,165,000 plant—location unspecified. (Du Pont got three nylon certificates totaling over $42 million.)

It's no wonder that wags in the textile business, trying to invest wool with some of the synthetics' glamour, are calling it Fiber W!

. . . The Editors

This is under no circumstances to be construed as an offering of these securities for sale, or as an offer to buy, or as a solicitation of an offer to buy, any of such securities. The offer is made only by means of the Prospectus.

NEW ISSUE

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July 15, 1952

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STEEL STRIKERS: A three-way pinch on the process industries.

Fear for the Weeks Ahead

As the nation's longest steel strike was about to enter its eighth week of paralyzing inactivity, CW surveyed representative companies in the chemical process industries, learned that most had weathered shortages and loss of business fairly well up to now. But with shutdowns increasing as consuming industries reduce schedules and as inventories are depleted, producers see the situation getting rougher by the day.

First and hardest hit by the banking of steel furnaces and the shutdown of related cokeoven production have been coaltar processors. Coal chemicals producers, the bulk of whom are tied to steel operations, have either closed shop entirely, or are operating at a mighty low rate.

The effects of their curtailed output on consumers vary with the size of the company and the inventory it had on hand. Many of the smaller benzene users, for example, have already reached the bottom of the barrel, and even some of the big ones think they will be in the same boat before long.

The situation would be much more critical, of course, if business had not been slow prior to the strike. That's why general opinion among those dependent on coal chemicals is that supply conditions—except for ammonium sulphate, which is really tight—have been tolerable up to now, but will be impossible if some settlement is not reached soon.

Turn About: From the sales viewpoint, however, matters have already reached the impossible stage. The strike has only compounded the headaches of a soft market by cutting consumption in many industries.

Not only are direct sales of chemicals to the steel industry (*CW, June 14*) out, but the growing number of steel-consuming manufacturers running out of stock and furloughing workers hits chemical makers too.

Take the auto industry, for example, where only two firms are going full-blast: Rubber tire producers are gearing operations down to conform to the slower pace; decreased demand for solvents for finishes is filtering back to suppliers; degreasers makers are finding demand off; plating chemicals companies, ditto.

In other industries, it's the same story. The slow-up in heavy industry hits manufacturers of abrasives, rust preventives, metal cleaners. Plastics are feeling the blow too. One example: Reduced output of refrigerators has meant reduced demand for styrene, which is used for trays.

The general slackening of the industrial tempo hurts another type of manufacturer often overlooked—the "sanitary chemicals" producer. With factories shut down, or running at reduced rate, maintenance materials are not needed.

Steel Itself: But the chemical process industries as well as other industries, themselves are consumers of steel. And with a gigantic building program still under way, availability of structural steel, steel for equipment, pipes, drums, etc. is of concern.

Here again, few admit to being in critical need of steel. That isn't surprising, for with the strike gradually depressing overall industrial activity, whether a plant comes in a month or two later than planned isn't going to matter too much.

But the present situation does force a lot of juggling of what steel is on hand so that first projects come first. Some construction has been halted, though, and many plans that under ordinary circumstances would have been in the works by now, are still in the blueprint stage.

Just as important as structural steel shortages, if the strike continues, is the lack of replacement parts for necessary plant maintenance. Equipment and instrument makers are already beginning to scream about lack of steel, and some suppliers are not taking orders for the present.

Steel drums and other metal containers have not yet reflected the pinch to a great degree. That's probably because so many of them are returnable, and because business has been so poor. "Were business as good as last year," the common remark runs, "we'd be seriously handicapped by lack of containers."

Slow Death: The general feeling is that all industry is gradually becoming paralyzed, and that no one seems to be able to do anything about it. Those lucky enough to have escaped so far the full brunt of one of the three pinches—raw materials shortages, loss of outlets, and lack of steel—realize that it is only a matter of time before they are hit.

And even when a settlement is reached, they have to look forward to many months of working off the effects of the long shutdown. Not only will the pipelines have to be filled again, but the fear is that there will be higher prices for everything.

Gas Works Fracas

Five labor unions, all hungry for new members, are battling for bargaining rights to be decided in an NLRB election at the new Doe Run, Ky., plant at Mathieson Chemical Corp.

Since there is no bargaining background at this propane, butane and natural gas plant, the NLRB has decided to grant all five unions a place on the ballot. The 250 employees also will be able to vote for "no union," if they wish.

Oil Workers International Union (CIO), in accordance with CIO policy for plant-wide unionizing, is seeking to become bargaining agent for all production and maintenance workers. The four AFL unions involved want to carve the plant force into bargaining units based on crafts.

United Association of Journeymen Plumbers & Pipefitters wants to represent the plant's pipefitters, welders, maintenance and instrument mechanics. International Brotherhood of Electrical Workers will campaign for the electricians' vote. And competing for the other hourly-paid employes are the International Chemical Workers Union and the International Brotherhood of Firemen and Oilers.

Keeping Up-To-Date

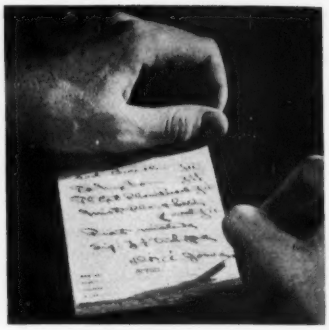
Chemical engineers in the Charleston, W.Va., area are enthusiastic about a new departure in advanced education for industry men that is practical and inexpensive. It involves lecture series on a local level by experts in various phases of chemical engineering.

The method of study is enthusiastically endorsed by the Charleston Section of the American Institute of Chemical Engineers, which has arranged lectures in distillation and heat transfer.

The sponsoring group reports that by charging $6.00 for eight lectures, it was able to pay lecture fees and travel expenses of the visiting experts, invited from all over the United States.

Each lecturer was asked to provide a complete set of notes and appropriate problems. These were reproduced and distributed prior to each session. So popular were the first two series—148 attended the distillation lectures, 119, heat transfer talks—that fifty advance enrollment fees had to be returned because of lack of seating space.

The local AIChE section will continue the project, is considering courses in speed reading, chemical thermodynamics, corporation finance, chemical economics, technical writing, and chemical kinetics.



Prescription sales of antihistamines are steadily inching up . . .

. . . but slipping over-the-counter sales to unconvinced sneezers prove that . . .

The Boom Is Gone

Over-the-counter sales, responsible for the antihistamine drug boom, have nose-dived.

But ethical sales are on the rise as awareness of allergies increases, and physicians prescribe antihistamines for treatments.

Nothing seems impossible in the chemical process industries, but even the most blasé in the field had to admit to some amazement when *antihistamine* became a household word and a druggists' bonanza almost overnight. That was back in late 1949 following the Food and Drug Administration's approval of such compounds for over-the-counter sales.

Antihistamines prior to that time had enjoyed a respectable prescription sale for treatment of allergies. Their promotion as proprietaries, however, was for treatment of the common cold. In selling the American public on a long-sought "remedy" for the country's most prevalent ailment, drug houses had the powerful support of some sensational clinical results and the "lay medical press." Brand names rapidly sprang up, sales boomed.

The Pendulum Swings: But that's all changed now. Walk into any drug store this week and ask the man behind the counter how many people come in and order a box of antihistamine cold pills. "Not so many," will be his reply, and he'll tell you that it's an old story to him: Sales in 1951 were way off from 1950, and so far this year, they are running behind last year; he's not optimistic about next winter either.

It is not all tears for the druggist (or his supplier), however. For while there's no denying that the over-the-counter boom has fizzled, ethical sales of antihistamines have picked up considerably, and promise a more stable, reliable market for the drugs.

Everyone in the field will admit that is the trend in antihistamines. But it's harder to get unanimity on what it means in dollars, just as it is difficult to establish how big a boom the over-the-counter surge really was. A year and a half ago, the industry was talking in terms of a $100 million annual retail business for all antihistamines. Perhaps the sales experiences of the most successful companies over a short period indicated that happy total, but a more realistic estimate is that $30 million was the top reached.

Money Talk: Examining the sales of pills alone, one might come up with a picture that looks something like this: In 1950, over-the-counter sales hit about $14 million, ethical, $11 million. In 1951, proprietaries sagged to $6-7 million while ethical ran $9-10 million. And so far this year, the

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non-prescription phase is off 16-18% (which extrapolated for the year would mean sales of about $4.5 million) but prescription sales are 5-7% ahead of last year (a recovery to $11-12 million for 1952 if the rate holds).

In addition to pills there is a good market in cough syrups, creams, elixirs, ointments, etc.—perhaps equal to 25% of the drug store ethical volume—and direct hospital sales boost the ethical figure another 10%. Thus a rough total for all antihistamines (in retail terms) would be $30 million in 1950, $21 million for 1951, and an indicated $21 million this year.

Pinning It Down: You can get almost as many reasons for the sharp reversal of form as you can estimates of how big the business really is. For one thing, instead of agreement among medical people on antihistamines' efficacy in treating colds, or at least cold symptoms, violent differences of opinion developed. There seemed to be a clinical test showing them to be of little value for every report showing them to be the wonder cures that ads trumpeted.

The medical profession launched a drive against the proprietaries, and the Federal Trade Commission chided several makers for their exaggerated claims. Many bitter drug makers privately complain that physicians were not lily-white in their intentions, charge that they were writing articles against "cold cures" with one hand, writing prescriptions for them with the other.

Whether misled into expecting more than they found by the tremendous advertising ballyhoo associated with any new consumer item, or whether their types of colds did not respond to the drugs, large numbers of the buying public went back to their old stand-bys. Moreover, many companies have been as quick to get out of the business as they were to get in, and those that are in the business to stay, have cut back considerably on their promotion.

That decrease in the number of brands on the market and the falling off in advertising support, according to those convinced of the merits of their products, are more the cause of the decline than the reflection of public acceptance. Moreover, they add with some justification, the antihistamine sales pattern is true of many new drugs: A product is introduced, sales boom as distribution is widened, then the market tapers off and resumes normal steady growth until the true potential is reached.

Rebound with Rx: But if any blame can be attached to physicians for the dip in proprietary sales, an equal amount of credit is due them for finding greater usefulness for antihistamines. Antihistamine prescription writing is up because, as one manufacturer puts it, "antihistamines now have a definite place in the armamentarium of every physician." The doctor is recognizing many heretofore improperly diagnosed ailments as allergies, and is prescribing antihistamines to treat these ills.

Many types of pain, among them menstrual discomfort and some kinds of headache, are now attributed to allergic reactions; and one of the more dramatic uses is in minimizing reactions to antibiotics. Topical applications for poison ivy, oak and primrose are in wider usage. And a new application not yet very large, but increasing, is in blood transfusions to minimize the shock some allergic people experience.

How large the prescriptions end of the antihistamine business will grow and how much proprietaries may shrink, is anybody's guess. Those with retail products have not been standing still on the technical front either, and new formulations—principally combinations of antihistamines and aspirin, phenacetin and caffeine (APC)—have made their appearance.

The odds are that the precipitous drop of proprietaries is over, and that they will retain their satisfied customers while adding new ones through continued promotion on a sound basis. Ethical sales will probably continue their re-dominance of the field, expanding as the nature of illnesses is better understood and greater dependence is placed on antihistamines now available and new ones under development.

Two-way Schooling

More chemical engineers out of every entering freshman class is one goal of a new plan to be launched this fall under an agreement between the University of Pennsylvania and Franklin & Marshall College, Lancaster, Pa.

Aimed at helping to overcome the current shortage of engineers, the new plan will enable a student to earn both a liberal arts degree and an engineering degree within five years after his high school graduation.

Here's how it'll work: The student qualifies for his liberal arts degree by studying for three years at Franklin & Marshall. Then, if recommended by F & M and approved by Penn, he can join the junior class of one of Penn's engineering schools, and in two more academic years be ready for a professional engineering job.

Texas Armistice

An "armed truce" has been arranged in the 75-day strike that had bottled up Shell's chemical plants in Houston.

Under this 60-day armistice, employees have the right to resume their strike if the new contract is not signed. It calls for a 15¢ across-the-board hourly pay increase, shift differential pay of 6¢ and 12¢ an hour for second and third shifts, retroactive to May 1; and an $10 bonus in lieu of further retroactive pay—all subject to WSB approval.

This strike—part of the general walkout by oil workers last spring—

CURRENT LIST OF DPA-CERTIFIED CHEMICAL FACILITIES

Company, Location	Product	Amount Certified	% Certified
Monsanto Chemical, Springfield, Mass.	Styrene	$ 87,565	45
American Cyanamid, Wallingford, Conn.	Melamine resins	803,161	45
Monsanto Chemical, Springfield, Mass.	Synthetic resins	500,000	35
American Cyanamid, Wallingford, Conn.	Melamine resins	77,963	45
Monsanto Chemical, Springfield, Mass.	Styrene	157,915	45
Catalin Corp. of America, Ford, N.J.	Styrene	628,210	45
American Cyanamid, Bound Brook, N.J.	Mononitrobenzene	500,000	40
Air Reduction Co., Bethlehem, Pa.	Oxygen	286,327	60
Firestone Tire & Rubber, Pottstown, Pa.	Vinyl resins	6,022,700	45
Pathfinder Chemical, Point Pleasant, W. Va.	Polystyrene resins	2,397,650	45
Simpson Creek Collieries, Baltimore, Md.	Sulfur	433,040	70
Air Reduction Co., Lorain, Ohio	Oxygen	308,100	60
Goodyear Tire & Rubber, Akron, Ohio	Styrene	1,762,000	45
Monsanto Chemical, Addyston, Ohio	Styrene	3,673,270	45
Acetogen Gas Co., Detroit, Mich.	Oxygen gas	79,167	45
Globe Oil & Refining, Lemont, Ill.	Elemental sulfur	182,890	70
Shell Chemical, Houston, Texas	Ethylene, propylene	227,330	50
		1,214,570	75
Reynolds Mining Corp., Poncha Springs, Colo.	Fluorspar	393,481	70
Monsanto Chemical, Long Beach, Calif.	Styrene	133,120	45
Dow Chemical, Torrance, Calif.	Styrene	1,723,000	45
Air Reduction Co., Philadelphia	Liquid oxygen, nitrogen and argon	8,452,520	50
American Cyanamid, Willow Island, W.Va.	Melamine	615,000	45
Hercules Powder, Hopewell, Va.	Ethyl cellulose	315,865	45
Diamond Alkali, Houston, Texas	Methylene chloride	119,000	60
Commercial Solvents, New York	Nitroparaffins	13,195,300	60

involved 1,500 employees at the Shell refinery and 875 at Shell Chemical Corp.'s Houston works. They're members of Oil Workers International Union (CIO).

Whipping Boy

Whodunit? It's a sultry summer day; with barely a breath of breeze, and the city of Louisville, Ky., is enshrouded in smoke. This prompts scores of citizens to telephone their objections to Vic Reynolds, assistant engineer of the new Jefferson County Air Pollution Control District. Reynolds drives around town on a personal investigation, then announces his verdict: The noxious odors are coming from the Rubbertown neighborhood (which includes chemical and rubber plants of Du Pont, National Carbide, etc.) and they include styrene, which is used in making synthetic rubber.

But other observers refuse to believe that Rubbertown – traditional whipping boy for the smoke control partisans – is automatically guilty of every whiff of smoke and dust in Louisville's air. One dissenter points out that:

- Managers of the synthetic rubber plants announced several weeks ago that the plants were shutting down in compliance with Government orders.
- Dust was being tossed into the air from an earth fill project near the Fairgrounds.
- Smoke was bellowing forth from a fire in the city dump—and "we have never as yet been near a burning city dump that did not smell to high heaven."

Hormone Trespass

After 3½ years of litigation, Ciba Pharmaceutical Products of Summit, N. J., has come out on top in its brush with Chemical Specialties of New York, concerning infringement of two male sex harmone patents held by Ciba.

The consent judgment in Federal District Court in Newark affirms the validity of Ciba's basic patents (2,109,400 and 2,308,833) covering testosterone propionate, methyl testosterone, and their manufacturing processes.

Terms of the settlement:

- Chemical Specialties makes "a substantial cash payment" to Ciba for past infringements.
- Ciba grants to Chemical Specialties and also to American Syntex, a Puerto Rican corporation, licenses to manufacture and sell those two products in U.S. territory.

In conceding the infringements, Chemical Specialties was backing down on the allegations contained in its complaint filed Jan. 4, 1949. The company admitted there was "no basis in fact" for its allegation that the Ciba patents were invalid under patent laws and unenforceable because they are misused as part of a conspiracy in violation of Federal anti-trust laws.

Licenses granted to Chemical Specialties and to American Syntex were non-exclusive, non-assignable.

Power for Palavers

To give their 10-man negotiating committee more bargaining power in current talks with management, the approximately 25,000 employees in seven B. F. Goodrich rubber plants have armed the committee with authority to call a strike.

For the same reason, United Rubber Worker (CIO) negotiators are expected to ask employees of Firestone, Goodyear and U.S. Rubber for similar authority soon.

Discussion of union demands for higher wages and augmented health, welfare and pension plans is expected to get into high gear next week following a let-up in negotiations while many of the principals were in Chicago for the political conventions.

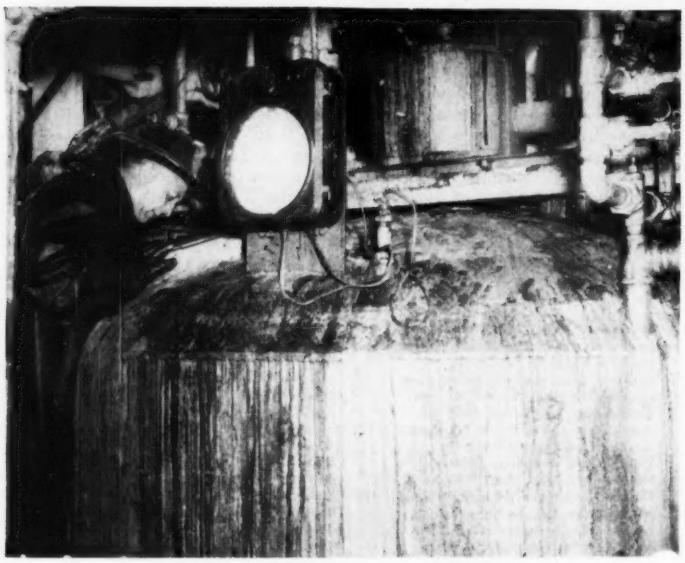
The present contract between the URW and Goodrich expired this week, but was expected to be continued on a day-to-day basis during bargaining parleys.

No-Strike Order Dies

The coercion of the court has been lifted from the Allied Chemical & Alkali Workers Association at the Columbia-Southern Chemical plant in Barberton, Ohio, so that those workers now are plying their trade of their own free will—not under duress.

Because the company charged that the union was set to call a strike, Summit County Common Pleas Court issued a temporary restraining order forbidding the union to go on strike. The independent union's 2,000 members reportedly had authorized a strike in support of their demand for higher wages.

This week, union and management agreed on how to get along with each other for the duration of the present contract—one more year. The court then dismissed its temporary injunction, which was based on a no-strike clause in the contract.



Lucky Workers Were Away

BIG BOOM IN JERSEY: Six men were injured, plant damage was more than $10,000, and one man was trapped for a short time in a carbon dioxide tank (shown above) when an explosion boomed out in the Ultra Chemical Works, Paterson, N. J. Production was not interrupted, as the company's 140-man force was on vacation. In the course of repair and alteration work, the flame of a welding torch apparently touched off the blast. This caused the automatic carbon dioxide system to cut off, holding a worker in one of the tanks. The company makes synthetic detergents and chemical intermediates.

When you are looking over the list of Muriatic Acid suppliers who are bidding for your business, cast your ballot for Columbia-Southern.

Columbia-Southern has an enviable reputation as a producer of basic industrial chemicals for over half a century. Its business policies have fostered lasting friendship with its customers.

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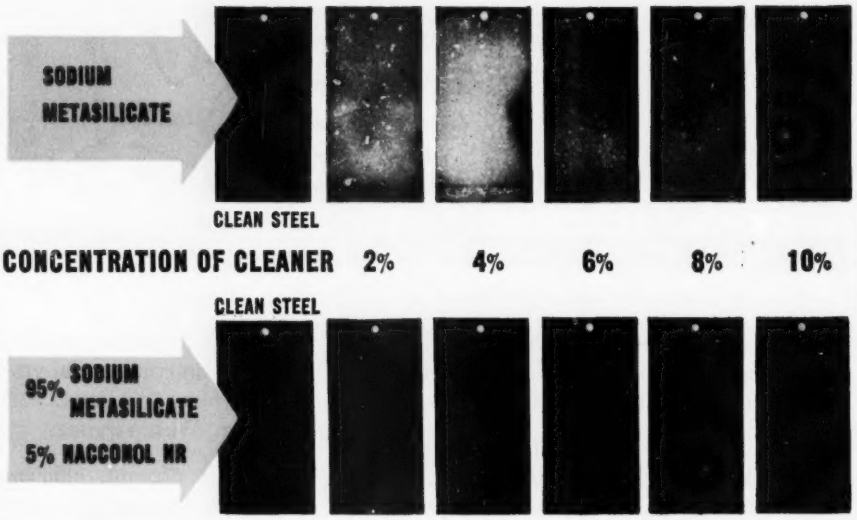
About "Luminograms"

Test panels shown here were coated with mineral oil and then immersed in the cleaning solutions at 140° F for 10 minutes. When photographed under ultra-violet light, fluorescent oil residues invisible to the naked eye show clearly as white or grey areas, in proportion to the amount of oil residue on the panel. A perfectly clean panel, obviously, photographs black under ultra-violet light.

REMOVAL OF MINERAL OIL FROM STEEL
10 MINUTE IMMERSION AT 140° F



send for technical bulletins

Test results with various Nacconol-alkali mixtures on various metals are given in complete detail in a series of Nacconol Technical Reports. They may suggest ways to increase the sale of your mixtures to the metal working industries.

Remember — More Nacconol has been used for more years than any other synthetic detergent. No other detergent does so much for so little! Available in flake, powder and bead form. For prompt delivery and technical service on mixtures, write, wire or phone our nearest office.

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Summer's Long-Lasting Strikes

Company	Plant	Products	Strikers	Issues	Duration to Date (weeks)
Johns-Manville	Lompoc, Calif.	Diatomaceous earth fillers	350	Health & safety, incentive pay	17
Swift & Co.	Bartow, Fla.	Phosphates	420	Union shop, safety, wages	10
American Cyanamid	Azusa, Calif.	Synthetic resins	72	Wages	6

Long-Run Strikes Plague Both Coasts

Chemical industry strikes that, in theater parlance, have been playing for the longest engagements this summer, are productions of local units of the International Chemical Workers Union (AFL).

The strike with the longest run and which has evoked the strongest feelings is that of some 350 production and maintenance workers at the Johns-Manville plant in Lompoc, Calif. This stoppage now has lasted four months.

New Phosphate Record: Down in Florida, about 420 ICWU members have established a new record in the Polk County phosphate field by staying away from the Swift & Co. plant at Bartow for 10 weeks.

Another strike that seems to have settled down for the summer is that of 72 American Cyanamid employees at Azusa, Calif., who for six weeks have been picketing for a 25¢ hourly wage increase. This is the first strike in the 30-year history of this plant, and negotiations were still in progress at last report. The plant produces synthetic resins.

Safety a Key Issue: In the Johns-Manville case, the union has declared that the key issue is health and safety of the workers. The company's incentive system provides that if a man produces 25% above standard, he gets 25% more than his basic pay. This, contends the union, impels many workers to risk pneumoconiosis by working too fast and recklessly.

The company retorts that the union appears to be stalling by juggling a whole string of issues. The company claims that agreement was reached on a set-up for a union-management committee on health and safety, and cites a telegram from the California State Department of Health as support for its argument that heavy work in this plant is not more hazardous than light work, if proper precautions are taken. The Lompoc plant turns out diatomaceous earth products for use as filter aids, fillers and high-temperature insulation.

No Retreat: "We will not grant the union's demand for elimination of our wage incentive plan, which for many years has worked so well at all J-M plants," the company states grimly. "Furthermore, we hope to extend the plan to departments of our plant not now covered."

The union charges that the company is misusing the telegram from the Health Department, and points to a report by the chief of the Bureau of Adult Health as proof of its claims. While the union is willing to compromise on other demands, including union shop, it insists on an acceptable system for settling health and safety problems.

Union Shop Battle: At Swift's Bartow plant, ICWU local 38 wants a union shop, time and a half for each sixth consecutive working day, a safety clause with provision for enforcement of recommendations by the joint safety committee, and a wage increase. The company is asking for a no-strike clause and the right to transfer employees to temporary jobs.

ICWU claims a membership of more than 95% of the production workers in the Florida phosphate business, and says that four of its seven agreements in that field have union-shop clauses. The other three contracts are of the maintenance-of-membership type.

Legal Complication: There's a gimmick in the whole question of union security in Florida these days. A recent amendment to the state constitution forbids making union membership a condition of employment—but the state legislature hasn't passed any enabling act to back up that amendment. Also, ICWU's attorney suggests that the state amendment might be in conflict with the Federal Constitution. Meanwhile, no one knows for sure whether the new amendment can be enforced.

How long can these strikes keep going? At this point, it seems there is some grounds for optimism about settlement of the phosphate and Cyanamid stoppages this summer, but there's no sign of accord in the Johns-Manville strike. Although some of the men have given up and left town in search of jobs elsewhere, most members of Local 146 have held their ground at Lompoc and are keeping picket lines manned 24 hours a day.

The union has organized a "food caravan" to truck food to the strikers from other ICWU locals in California. And with a growl at the company for being "adamant," the union warns: "This strike could go on forever."

COMPANIES . . . .

Dow Chemical's whopping $100 million convertible debenture issue is undoubtedly the biggest chemical financing news this week. The reception is better than was anticipated by the underwriters, who priced the 3%, 30-year issue at $101.50 (giving an actual yield of 2.925%). Before the first nightfall over the new issue, it was being traded at 102.5% of par.

• The convertibility factor (**CW**, *July 5*) will be $50 per share through July 1962, assuming that the pending 3-for-1 stock split is effected. For each five years thereafter, the ante will be boosted $5.

•

Kaiser Aluminum & Chemical has realized the final $2.5 million of the $75 million in credit it received last year from institutional investors. The first mortgage bonds, yielding 3.625%, come due in 1976.

•

Eagle-Picher's offer to buy the common stock of Ohio Rubber (*CW, July 5*) was taken up by those holding 98.2% of the company stock.

•

Cerro de Pasco, like Eagle-Picher and St. Joseph Lead, is seeing green grass on the other side of the diversification fence. It has called a special stockholders meeting to authorize its engaging in the oil or natural gas field.

EXPANSION . . . .

Triple Superphosphate: Four companies, Davison Chemical, Stauffer Chemical, American Smelting & Refining and Kennecott Copper are in the fertilizer news picture this week.

• Davison, long a producer of rock phosphate and normal superphosphate fertilizer, will produce triple super by Oct. 1, 1953, in facilities near Lake-

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BUSINESS & INDUSTRY

land, Fla. It will use the Dorr process. Cost of this plant and the company's now a-building petroleum catalyst plant at Lake Charles, La., total $18.5 million.

• Stauffer, AS&R and Kennecott have agreed to erect and operate a triple super plant near Salt Lake City, Utah. The plant, to be completed by summer of 1953, will produce 60,000 tons (A.P.A.) of the material per year.

Raw Materials: Stauffer's phosphate rock deposits in Wyoming and Idaho; sulfuric from Garfield Chemical via smelter gas recovery. Also to be sold will be some of the phosphoric acid produced via the wet process.

•

Explosives: Canadian Industries Ltd. has begun production at its Calgary, plant. Plant was located at Calgary because of the availability of nitric acid from the ammonia produced there by Consolidated Mining & Smelting.

•

Dynel: Union Carbide, notwithstanding the Defense Production Agency's avoidance of setting an expansion goal for acrylic fibers (*CW, July 12*), is proceeding with its plans for a 30 million pound-per-year spinning plant. It has spent $135,000 to buy 815 acres of previously optioned land near Draper, N.C.,* for its plant.

• Since it still has hopes of receiving a tax write-off certificate, Carbide is continuing its preliminary work, but will not begin actual construction until it gets a definite yes or no answer on the certificate.

•

Aluminum: Spartan Aircraft, oft-courted by DPA to be a producer of aluminum metal, this week appeared almost on the string. Apparent reason: the encouragement to U.S. companies given by the defense watchdog committee (*CW, June 14*). Probable location of the proposed integrated plant is Arkansas.

•

Polyvinyl alcohol: Colton Chemical (Cleveland) has gone onstream with new facilities for producing the polymer.

FOREIGN

Australia: Despite the protest of manufacturers and distributors, the government has ordered price reductions on supplies it buys for the country's socialized medicine program. The government will pay 60% less for its penicillin, 40% less on sulfacetamide, with smaller reductions for such drugs as Chloromycetin and sulfadiazine.

* The plant is actually near Draper, though the company, for sentimental reasons, prefers to say it is near Spray, N.C., where Carbide got its start.

• Sharp & Dohme, incidentally, has been considering the establishment of a new plant in the "Down-Under" continent.

•

Australian Cortisone: A project for extracting cortisone from whales will have it first tryout in September when Taloil Industries Proprietary (New South Wales) begins processing operations at Picton.

•

Israeli Antibiotics: The state-owned Israel Mining Corporation is trying to get other investors interested in the construction of a $1 million antibiotic factory to serve both local and export markets.

•

Indonesian Pharmaceuticals: Reicopharma (subsidiary of N. V. Handelsvereniging) has bought equipment from Europe preparatory to beginning pharmaceutical production. The enterprise has the wholehearted support of the government, which is trying to eliminate "excessive imports."

•

Brazilian Insecticides: Italian Montecatini interests are studying the possibility of building an insecticide plant in the state of Minas Gerais.

•

French Ag Chemicals: Rohm & Haas' agricultural chemicals will get an added push through the establishment of a new company, Societe Minoc.

LEGAL

Sales Tax Exemption: West Virginia farmers and fruit growers can now buy fertilizers, insecticides and other chemicals without paying the state's 2% sales and service tax. The ruling was made by the state Attorney-General following a vigorous campaign by the West Virginia Congress of Agriculture to void the tax on farm chemicals.

•

Smoke Agency Closes Plant: One manufacturing process at the Vichemco Chemical plant in Buffalo, N.Y., is idle this week, pending a hearing in City Court. Inspectors of the Erie County Health Department ordered the closing of that process, which allegedly was polluting the air with smoke and fumes.

•

Trust Protection Ends: U.S. oil companies engaged in foreign operations from now on will have to toe the line in obeying anti-trust laws, the Government announces. Since the Iranian refineries shut down one year ago this month, the U.S. Petroleum Administration for Defense has been allowing 19 American oil companies to make

VINYL COATINGS ENTER NEW ERA

Revolutionary Prufcoat Primer P-50 Makes it Possible to Apply Vinyl Coatings by Simple "Prime and Paint" Procedure — Just Like Ordinary Paints

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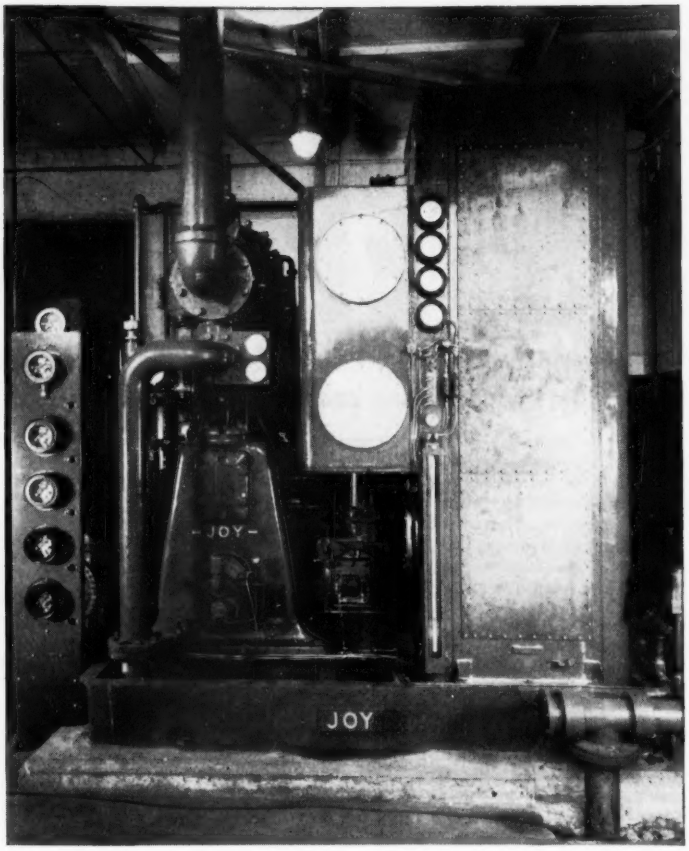

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foreign deals without fear of being prosecuted for violation of anti-trust law. This immunity is no longer needed, PAD explains, because "the worst of the (oil) shortages have been overcome."

LABOR . . . . . .

Synthetic Plant Hit: New construction at Humble Refining's synthetic rubber plant in Baytown, Texas, has been halted by a strike of AFL Boilermakers. The strikers reportedly have a mad on against another AFL union, the Iron Workers. Their 100-man picket line has been only at one gate, however; some 2,500 production workers are still on the job, using another gate.

•

Up By Stages: A three-year contract with a 9¢ hourly wage increase right off the bat and additional boosts of 4¢ each year has been signed by the AFL Chemical Workers and the management of Columbia-Southern Chemical Corp.'s plant at Natrium, W.Va. The 9¢ rise is for higher cost of living, and the first 4¢ hike is effective as of last month. The contract continues the same flat no-strike clause contained in previous agreements.

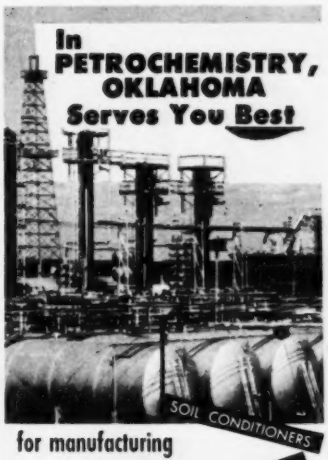
•

Five-Year Peace Pact: If various governmental agencies approve, the new five-year contract between Aluminum Co. of America and the International Council of Aluminum Workers Union (AFL) will bring 10% wage increases to 9,500 employes at the six Alcoa plants: Cressona, Pa.; Chillicothe, Ohio; Davenport, Iowa; East St. Louis, Ill.; Lafayette, Ind.; and Massena, N.Y. For the first time in the aluminum industry, there's a cost-of-living escalator clause—an annual wage increase of 4¢ an hour, plus a quarterly adjustment based on the commodity price index.

Living on Inventory

With enough products in the warehouse to enable the company to continue meeting buyers' orders "for quite some time," Merck & Co. is keeping its whopper of a plant at Rahway, N.J., open this month despite a strike by 1,600 hourly-paid production workers.

The workers, members of the independent Merck Employees Organization, Inc., are picketing the plant but are not preventing the other 3,400 employees from going to work. The strikers first asked a flat 27¢ hourly pay increase over the present $1.64 average; now have scaled down this request to a 10¢ cost-of-living boost written into their base pay, an out-



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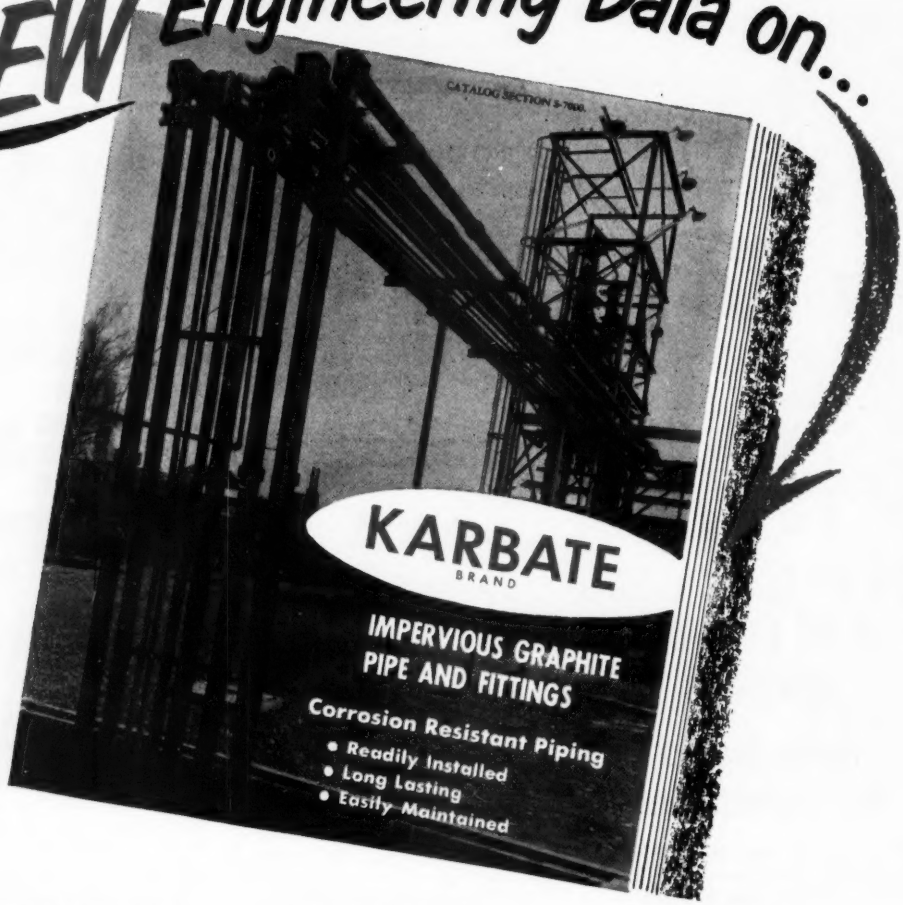

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Company's reasons for turning down the bid: (1) can't afford it; (2) WSB regulations clearly prohibit it. A Federal conciliator is trying to maneuver the two parties into agreement.

War on 'Ersatz Unions'

Embittered by a 1950 defeat that they blame on what they regard as "ersatz unions," the United Gas, Coke & Chemical Workers (CIO) have gained one point in their drive to organize Sharples' Chemicals employees at Wyandotte, Mich., and are pressing for another advance.

First round of this struggle consisted of an NLRB hearing in which the Board ruled last week that the company's employee committees in the Wyandotte plant must be dissolved because they constitute an unfair labor practice.

Election Order Expected: This clears the way for NLRB to act on Gas-Coke's request for a bargaining election to be held at Wyandotte. Washington observers are predicting that the Board will order the election, with Gas-Coke sure of a spot on the ballot.

If a group of Sharples employees tries to set up an independent union and have it listed on the ballot, Gas-Coke can be counted on to meet the challenge with another "company domination" charge aimed at keeping the independent union off the ballot.

Union Out-Argues Company: In the NLRB hearing, the company took the position that the employee committees were not labor organizations as defined in the Taft-Hartley law. Also, the company denied Gas-Coke's charge that the committees were dominated by the company.

On the first point, the Board ruled against the company because it found that the committees gave employees an opportunity to satisfy grievances and improve working conditions—thus functioning as labor organizations within the meaning of Taft-Hartley.

What convinced the Board of the union's charge about company domination was evidence that the company had control of committee membership through power to unseat any representative by transferring him to another department or firing him; paid regular wages or overtime rates to committee members for time spent on committee activities; supplied stenographic, clerical and other services; and provided almost complete financial support of the benefit fund to help needy employees.

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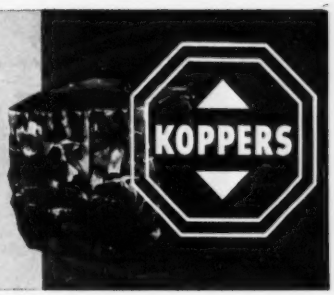

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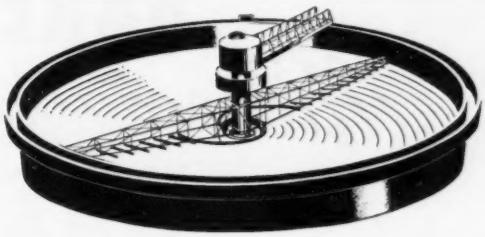

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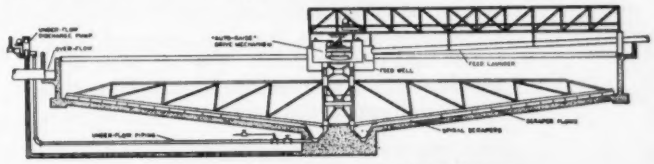

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Resistance to Unions: The company's attention to workers' problems has given its plant force strong sales resistance toward union. For many years, all employee problems were handled on a personal basis. Then in 1941, with the number of workers rising rapidly, Sharples encouraged formation of the employee committees to systematize and speed up the process of working out labor problems. No union has been able to win bargaining rights against this system.

Sharples, which makes organic products like amyl acetate and alcohol, aliphatic amines and rubber accelerators, won't comment while the case is pending. A spokesman for the company said no decision has been reached on whether to contest the NLRB ruling.

Reversal in Baltimore

Amid hints that they're ready to unleash a campaign to win bargaining agent rights at numerous chemical plants in Baltimore and vicinity, the CIO Gas, Coke & Chemical Workers appear to have displaced their AFL rivals at one Baltimore glue works. After a number of years as members of the International Chemical Workers Union (AFL), employees of Baugh Chemical Co. voted to switch their allegiance to Gas-Coke. Out of 243 eligible workers, 98 voted for Gas-Coke, 77 for ICWU. Unless the election is protested, the NLRB will certify Gas-Coke as bargaining agent next month.

Frank Podsiadlik, who piloted the Gas-Coke organizing effort at the Baugh plant, says this election "may set the stage" for other Gas-Coke victories in the Baltimore area.

Too Fast on Fluorides?

The Delaney committee, in its fourth and final report, has thrown its lot in with those who warn against any headlong rush towards fluoridation.

Their report (*CW Newsletter, July 19*) stated that fluoridating the public water supply of the country is essentially a local problem, and as such, one where no federal legislation is needed.

Committee members stress, however, that fluoridation is a "calculated risk" at the present time, and that before fluoridation is adopted in any community, people should be given an opportunity to decide the issue for themselves.

All members of the committee signed the report, with Nebraska's physician-cum-legislator A. L. Miller adding a supplemental view that the U. S. Public Health Service was pre-

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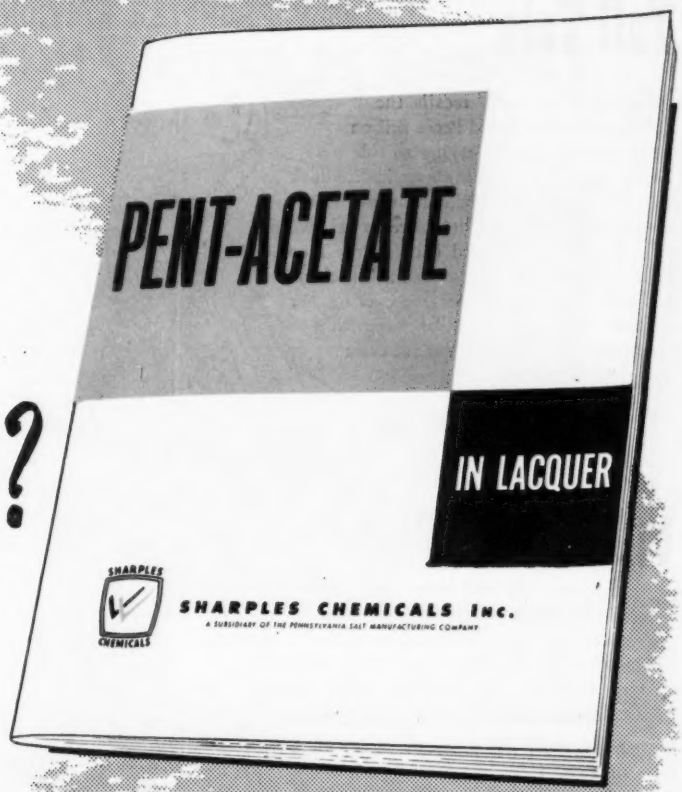

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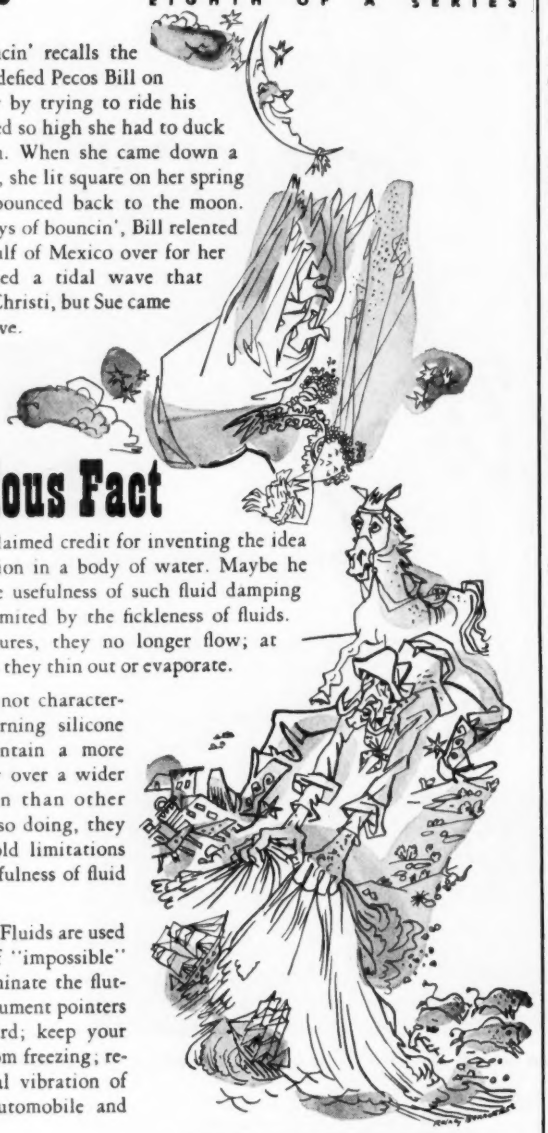

to Fabulous Fact

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mature in urging "universal fluoridation."

"The Public Health Service should concern itself with good public health measures and the prevention of disease. If it goes into the propaganda field, it will lose its effectiveness and the confidence of the public."

Miller, in commenting on the number of groups which have endorsed fluoridation,* made this statement: "I am convinced that many of the groups who now endorse fluorides in water are merely parroting each other's opinions."

The fact there may have been some such plagiarism, however, does not negate the opinions of such eminently conservative groups.

Plus and Minus: While the report was signed by all members, a person who was in favor of fluoridation could easily make an analysis of it similar to that made by committee member Walt Horan on the subject of pesticides (*CW, July 19*).

In many ways, the report could be considered alarmist. The quotations often date back to 1950, though later material from the same source is available. Too, the report devotes a far larger space to negative material than to the bulk of positive evidence.

KEY CHANGES . .

Robert S. Whiteside: To vice-president, Sterwin Chemicals, Inc., New York, N.Y.

Roy M. Owens: To managing director, Standard-Vacuum Oil Co.'s Australian subsidiary.

Malcolm H. Hebbs: To manager, general physics research department, General Electric Research Laboratory.

H. C. Seawell and A. R. Denmark: To district managers, export field operations, Sharpe & Dohme, Inc., Philadelphia, Pa.

John P. Burrows: To general purchasing agent, International Minerals & Chemical Corp., Chicago, Ill.

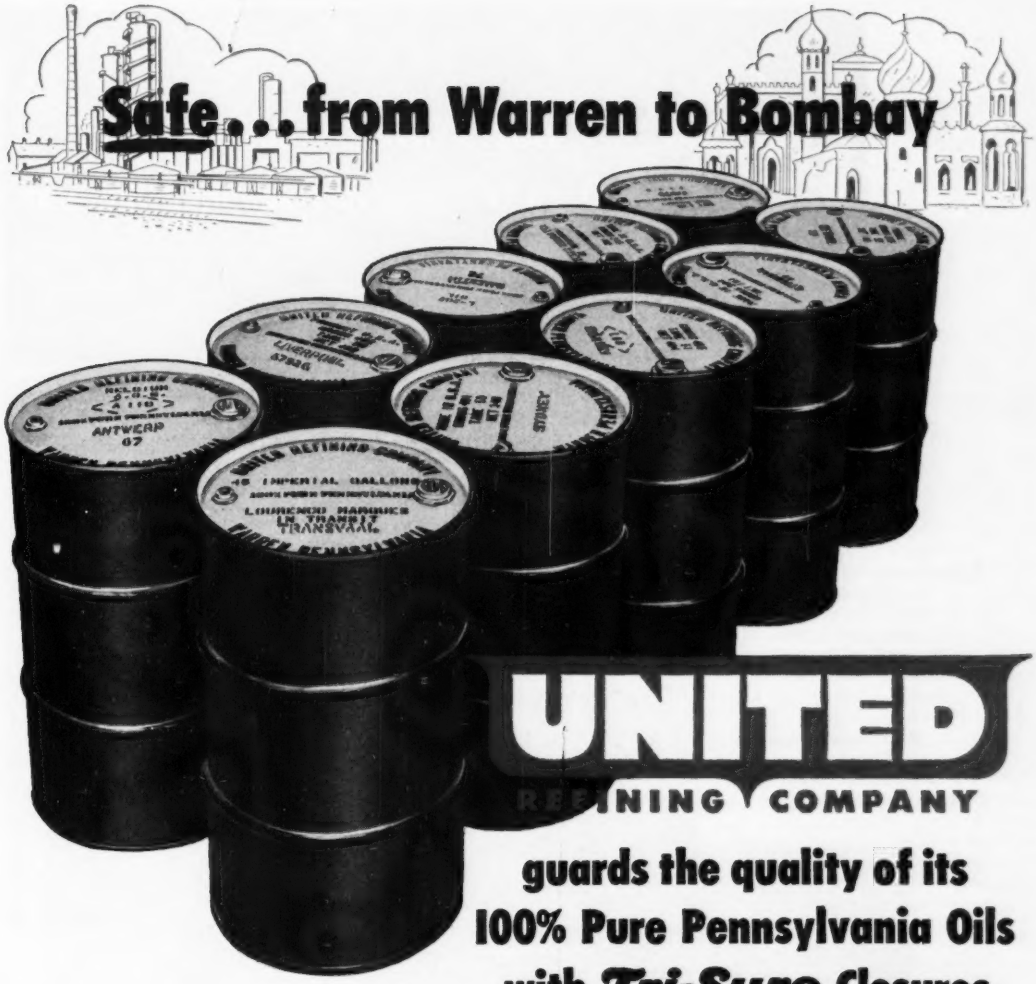
Ralph Ball: To technical director, plastics division, Celanese Corporation of America, New York, N.Y.

KUDOS . . . . . .

Francis J. Curtis: Vice-president and director of the Monsanto Chemical Co., to president, Society of Chemical Industry.

* Among them, the American Medical Association, the National Research Council, the American Public Health Association, the American Dental Association, the Association of State and Territorial Health Officers and the U.S. Public Health Service.

Safe... from Warren to Bombay



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2342

Analysis By Paralysis

A new analytical method for insecticide residues is now being perfected at Boyce Thompson Institute, Yonkers, N.Y.

It's a bio-assay—mosquito larvae serve as reagent organisms—applicable to most commercial insecticides.

Major attractions: speed, simplicity and generally greater sensitivity than comparable chemical tests.

Ironically, the mosquito is proving to be one of the staunchest allies of the very scientists who are dedicated to the final extermination of it and its myriad insect brethern.

A cooperative research effort at New York's Boyce Thompson Institute has succeded in harnessing the perennial nuisance to a slick, new technique for pinpointing the amount of insecticide residues on fruits and vegetables. Eventually, the mosquito could be instrumental in the development of new and increasingly potent chemical weapons of insect destruction. But for the time being it is an unwitting accomplice in the Institute's efforts to assure a wholesome food supply.

The entire "chemicals in foods" issue is understandably a touchy one with pesticide manufacturers. The "threat to public health" has been popularized, dramatized and often sensationalized. Thanks chiefly to industry, it has never materialized. But the pesticide-producing industry would be the last to claim that a potential danger doesn't exist. For it's no secret that crop insecticides, for example, are poisonous to warm-blooded animals, rarely can be tolerated in concentrations greater than 7 ppm.

Keeping concentrations of insecticides in foodstuffs below the danger level is the goal. And reliable analytical procedures for these toxic compounds are essential to its accomplishment.

The problem grows more difficult with the passage of time and the development of ever-more-complex insecticidal agents. Before the advent of the organics, the job was relatively simple. Conventional analytical procedures were usually ample for the older arsenicals and copper compounds. Pyrolysis of the insecticide-containing fruit or vegetable readily yielded the metallic ash.

But there is no easy way with the organics. Separation of the insecticide from the fruit or vegetable matter is a must, can be a real headache. And you can't give the organics the kind or rough treatment inorganics thrive on. Chemical methods have been devised, chiefly for the chlorinated organics. But all are tedious and, with isolated exceptions (*CW, Mar. 22*), time-consuming.

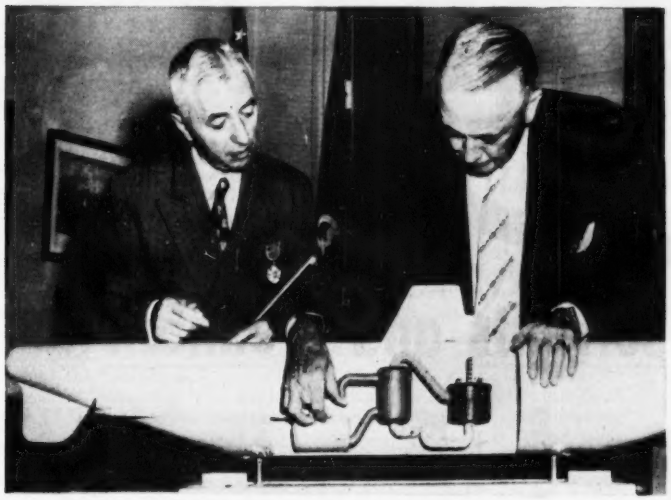
To further complicate matters, the organics are almost invariably more toxic than the inorganics. High sensitivity, therefore, is a prime requirement for any chemical method of assay. This problem and its implications are neatly summed up by Boyce Thompson managing director, George L. McNew:

Disconcerting Dozen: "Some of the newer organic insecticides may have legal tolerances set as low as 1 ppm. It follows that very sensitive analytical tests that will detect 0.1 ppm or less will be needed. This is difficult to attain, and the development of new insecticides often is retarded for want of suitable analytical procedures. Even more disconcerting to the food processor and government regulatory officials is the necessity for making dozens of specific chemical analyses for different insecticides on each lot of food products."

Shortcomings of chemical analyses clearly pointed up the need for a new research tack. The appeal of a biological approach intrigued investigators from the start, spurred a good deal of rewarding effort. Spore-germination tests for determining the efficiency of fungicides are one result of this work. And the familiar Peet-Grady technique for screening fly sprays is another valuable dividend. But the latter technique is, for the most part, highly specific, does not satisfactorily fill the need for a method applicable to the broad range of insecticides.

Moreover most bio-assays suffer from another equally serious failing—subjectivity. The operator administers the insecticide under study to the reagent organism, waits a predetermined period of time, then must determine the number of fatalities. Distinguishing a living insect from a dead one on sight is often a lot harder than it sounds.

Poke For a Rise: The new Boyce



Peek At the Future

SECRETARY OF THE NAVY, Dan Kimball (right) takes a close look at model of Nautilus, the Navy's new atomic submarine. His companion is Capt. Hyman Rickover USN who received the Gold Star in lieu of a second Legion of Merit award for his part in the development of the nuclear vessel. Cutaway model shows the location of the atomic power plant in the revolutionary new submarine now under construction at Groton, Conn. Descriptive information on the power plant is a closely guarded secret.

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Thompson mosquito larvae methodassay, complete with results, usually virtually eliminates this double trou-takes no more than an hour or two. ble. Yet this happy state of affairs hardly could have been foreseen. As originally conceived by Frank Wilcoxon and Kenneth Nolan of American Cyanamid Co.'s Stamford (Conn.) research laboratories, the technique involved the administration of a suspension of parathion residue to a colony of larvae and, after an extended wait, a fatality count with the aid of a binocular microscope. Subjectivity was still very much in force. Even a none-too-gentle poke with a probe failed, in many cases, to ascertain life, get a rise out of a merely paralyzed larva.

In 1948, Boyce Thompson entomologist Albert Hartzell took up where Cyanamid's Wilcoxon and Nolan left off, probed the method's value for determining an additional 15 commercially available insecticides. But the "alive or dead" dilemma persisted. Not until 1950 was it licked. And then only by a fortunate, though acute, observation on the part of the Institute's Harry Burchfield. Burchfield, concerned with the chemical end of the bio-assay, perceived that mosquito larvae show a marked aversion to light, vigorously swim away from the bright end of their container.

Incorporation of this photophobic effect into the bio-assay was the difference between an uncertain technique of limited value and a precise, sensitive analytical procedure. The method in its present form is the product of a team effort by Hartzell, Burchfield and insect physiologist, John D. Hilchey. Briefly, here's how it works:

Behind the Barrier: Mosquito larvae are placed behind a perforated barrier at one end of a cylindrical container containing a known amount of tap water. Insecticide-containing food extract is added to the container. After a specified length of time, a bright light at the larvae-end of the container is switched on. Number of migrating larvae and the distance they migrate is checked. At intervals, the larvae (still in the insecticide solution) are again placed behind the barrier and subjected to the light. Time of onset of paralysis with loss of photophobic migratory ability is a measure of the amount of insecticide in the food sample. Concentration of insecticide is determined by comparison with data taken from tests with solutions of known concentration.

Sensitivity of the new bio-assay compares very favorably with that of comparable chemical procedures. And the new method is fast; an average

Yet it would be unfair to say that the method is perfect. Research continues: correlation with chemical analyses is now in progress; and improved techniques for obtaining food extracts with all original insecticide intact will doubtless come in for added attention. But all things considered, the Boyce Thompson technique could well be welcome residue-insurance for an ever-cautious food-processing industry.

•

Warning: Some knotty problems will have to be overcome before electronic sterilization of foodstuffs is a practical reality. One of these is pointed up by James F. Mead, chief of the bio-chemistry division of University of Calif.'s (at Los Angeles) atomic energy project. Mead warns that X-rays have a damaging effect on fatty acids found in many food substances, points out that X-rays release free radicals (from fatty acids) which may act on certain food components to produce poisonous peroxides .

•

Explosives Boost: The Du Pont Co. is spending approximately $1 million on a new 35-man chemical research building for its explosives department's Eastern Laboratory (Gibbstown, N.J.).

•

Three More: Three new compounds raise the total of American Petroleum Institute standard samples to 204. They are: cis-hexahydroindan; and the cis and trans isomers of 1-methyl-isopropylcyclohexane. All are available from Carnegie Institute of Technology.

•

Lab Debut: Barrett Division of Allied Chemical & Dye Corp. has just taken the wraps off its brand-new Shadyside Applications Research Laboratory (Edgewater, N.J.). The company says the new laboratory will enable its technicians to test materials and processes used in the manufacture of plastics, rubber products, paints, varnishes, paper, laminates, insulating materials and a variety of other products under simulated production conditions.

•

New Role: Esters of *p*-hydroxybenzoic acid, familiar as pharmaceutical and cosmetic preservatives, are now making a name as adjuncts to antibiotic therapy. Heyden Chemical Corp, front-running producer of *p*-hydroxybenzoic acid esters, reports that recent clinical research has demonstrated their "effectiveness in controlling fungus-type infections . . . which frequently occur with antibotic therapy."

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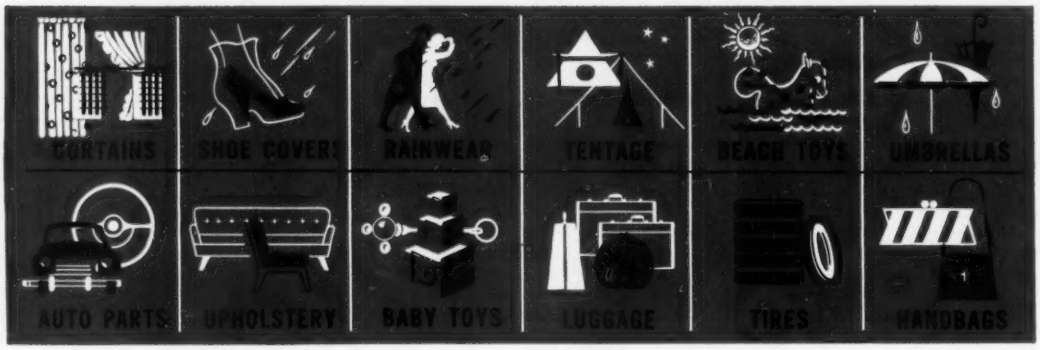

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Trapping the Invisible

Any pleasure Paul Magill (upper left) derives from that cigarette is purely coincidental to the scientific aspect of his indulgence. Magill, who heads Stanford Research Institute's air research project, is demonstrating his newest brain-child—a synthetic spider web to trap minute atmospheric particles.

Effectiveness of his invention is obvious from closeup (upper right) showing droplets of tar left behind by the smoke. The man-made web is the answer to a once-perplexing air research puzzle at SRI: To find an air filter as fine as a spider web, but—of necessity—a lot more durable.

Magill made his web from an aniline-solution of resin, of approximately honey-consistency. By manipulating a drop of the resin solution between two rubber stoppers, it gradually could be drawn out into fiber of about the same diameter as those spun by a spider. Adhesion of the synthetic fiber permits its attachment to small wire frames.

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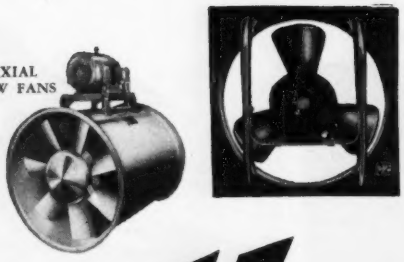

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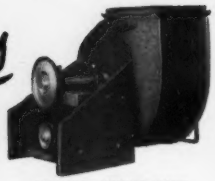
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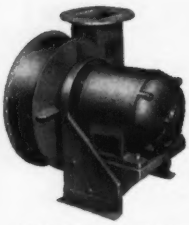
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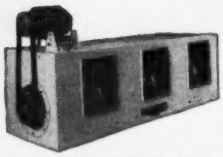
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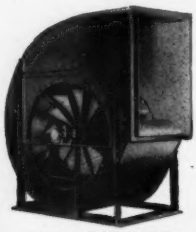
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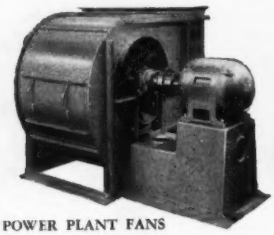
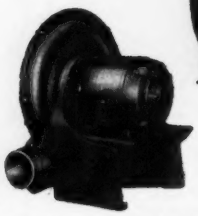

POWER PLANT FANS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RESEARCH. . . . . .

the kit are: a bottle of resin solution; rubber stoppers; wire frames; and a pocket microscope for a quick appraisal of the catch.

•

Spicy Study: Uniform standards for natural spices is the objective of an upcoming research program at Mellon Institute (Pittsburgh, Pa.). A long-range project, the work will have as its ultimate practical goal the establishment of laboratory test methods for spices, herbs and seeds. American Spice Trade Assoc. will finance the study.

•

Plates and Trays: Twenty-five chemical, petroleum and engineering firms have joined forces with American Institute of Chemical Engineers to finance a cooperative research program on plate efficiencies in fractional distillation towers. According to current plans, initial work will probe the effect of system properties on tray efficiencies. Tray design and column hydraulics will come in for future study. Contributions totaling $64,000 will take the program through its first year at Universities of Delaware and Michigan, and Polytechnic Institute of Brooklyn. In all the work is expected to last five years.

•

More Centralization: The Buffalo area is the locale for National Gypsum Co.'s planned $1 million-plus research center. Melvin H. Baker, chairman of National Gypsum's board of directors, foresees the start of construction this fall, completion by next summer. The company intends to bring all its research activities under one roof upon completion of the new facilities.

•

New Hydrides: University of Munich researchers headed by Egon Wiberg, have prepared a series of new hydrides for a study of their value as reducing agents. They are thallium aluminum hydride; beryllium hydride; gallium aluminum hydride; lithium gallium hydride; indium hydride. Iodine and bromine derivatives of aluminum hydride have also received close attention.

•

New Lease: Atomic Energy Commission and Oak Ridge Institute of Nuclear Studies, Inc. have recently signed a contract for the Institute to continue operation of AEC programs for another five years. The Institute, composed of 30 member universities in the South and Southwest conducts a series of courses in the safe handling of isotopes in addition to its research and educational activities in the field of nuclear energy.

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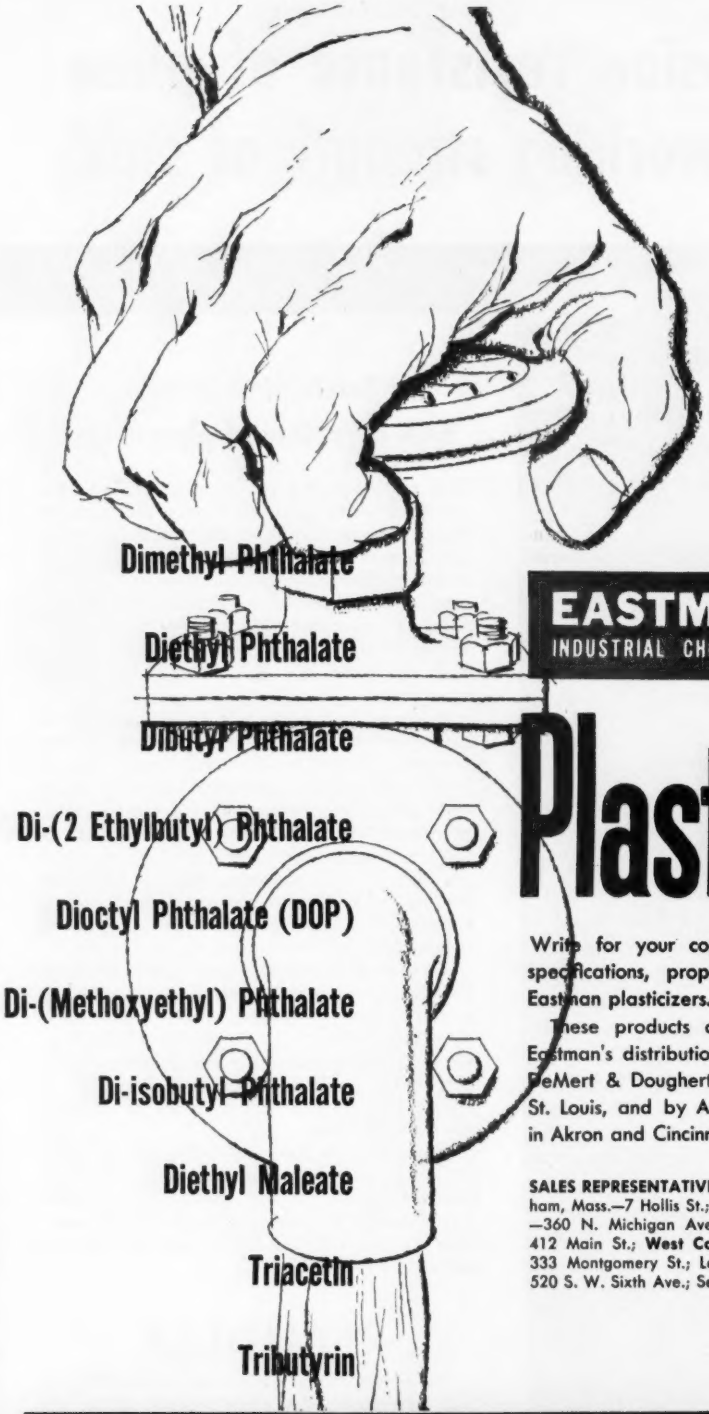

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SPECIALTIES . .

Problem in Adherence

Devising techniques for printing on polyethylene has been a tough problem in the expanding use of polyethylene packaging.

At least four methods are in use now, with widely varied approaches to the puzzle of how to make inks stick to the film.

With close to 70% of the 120 million pounds of polyethylene produced yearly ending up in packaging, printing on the material has become a big business.

Old Johannes Gutenberg might have thought he had problems, but they were nothing, modern printers groan, compared to the difficulties involved in printing on polyethylene films. The very advantages of this lightweight, chemically inert, tough film have proved to be trials for pressmen.

But at least four methods have been devised to decorate polyethylene films, boosting the attractiveness of a product for which demand already outstrips production. And these processes show widely differing angles of approach to an exceedingly difficult problem.

PACKED IN POLYETHYLENE: Advantages are sometimes disadvantages.

The Rub, the Remedies: Basically, it is the chemical inertness of polyethylene that gives the trouble. Ordinary inks, designed for paper or cellophane, can't seem to take a "bite" in polyethylene, won't stay on the film. Further, the flexibility of the plastic means a flexible ink is required; the stretchability of the films calls for an elastic, firm-gripping ink. Add to that complications like the mechanical difficulties in running a soft, stretchy material through a press, drying ink on a film that is quite temperature-sensitive, and you see the problems the polyethylene film printer faces.

To overcome these hurdles, one company has tried coating the film, another pre-print treating the film to alter it chemically, another using a physical process to make the ink grip, still another what it terms "electronic rearrangement of the molecules."

Nobody Talking: Details on the various printing methods are almost impossible to uncover. In the chemical specialties field, where process information is never handed out freely, producers are blabbermouths compared to the guardians of the secrets of polyethylene film printing.

Ink manufacturers, polyethylene makers, and converters, and many printing outfits have all had a hand in the development of ways to print the films, but remain mum on details.

One of the well established processes in the field is that worked out by Interchemical's International Printing Ink Corp. Called the Anilox method, it involves applying an anchoring coat to the film, and then printing on that.

General thought is that the coating compound is rubber-based dissolved in an aliphatic hydrocarbon solvent. The inks, too, are rubber-based, and firmly grip the "anchoring" surface. Ordinary aniline* presses may be used, with synthetic buna rubber rollers used for the actual applying of the fast-drying anchor coat. Press speeds up to 200 feet per minute of film are possible.

Hush-Hush Halogens: Another process that seems to have met with considerable success is one involving treating the film with chlorine before it is printed. One such process has been patented by Visking Corp. (Chicago), but that outfit is skittish when queried on the matter, won't say

* The term aniline is somewhat misleading; at the present time, the packaging industry is seeking to change the name to something else —suggested are Flexographic process, Permatone process, or Rotopake process.

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PRESSED STEEL TANK COMPANY 1906 1951 FIFTIETH ANNIVERSARY

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

whether or not it is now using the patented method. Printing on chlorinated polyethylene presumably requires alcohol inks.

A kind of contrast plunge system has been worked out by the Velveray Corp. (Clifton, N.J.). With the usual coyness in such matters, Velveray is noncommittal, but consensus of others in the field is that it consists of hot rolling the film (temperature variously estimated at 165-200F) just before the ink is applied, followed by cold rolling to set the ink into the film.

Milwaukee Way: Another leading converter and printer of polyethylene is Milprint Inc. (Milwaukee). Milprint has been employing Perma-Process pre-inking treatment lately. It uses dibutyl phthalate (for the most part) as a plasticizer to make its inks flexible, applies an overlay of varnish to protect the ink and give the film a gloss.

"Loxtite-treated" is what Traver Corp. (Chicago) terms the films it prints. Vaguely described as an electronic system to line the molecules up, the Loxtite method requires about half an hour to ready a roll of tubing for printing.

On other forms of polyethylene, such as sheeting and molded products, silk screening and letterpress printing have been tried with considerable success. (Gravure or aniline methods are tops in the film printing.) And though many printing firms and ink companies are working on the problems, most still admit they haven't yet developed a thoroughly satisfactory system.

Most of the leading film printers turn out work that will pass the "scotch tape" test—one puts a strip over the ink, rips it off, and prays the ink stays with the film instead of the tape. The scratch test—scraping the printed area to see if it wears off, is another test that is still used to determine durability of the work.

Demand High: The characteristics of polyethylene have built a high demand for it among packagers. At the present time, according to the U.S. Department of Commerce, about 70% of polyethylene produced goes into packaging of one sort or another (17% of that amount to the Armed Forces). But many converters complain that the price is high, although the demand still is greater than the production.

Printing costs with polyethylene film are generally somewhat higher than on other film. The actual ink cost is not always much greater, but there are somewhat higher production costs, due to the extra steps and equipment alterations required for polyethylene film printing.

One big field for growth of polyethylene film is fresh produce packaging, many converters say. Quick frozen poultry was one of the first applications, and it has shown the adaptability of polyethylene in this outlet.

Fair Trade Approved

To the surprise of most observers, President Truman signed the McGuire "fair trade" bill last week. The bill, which put teeth again in some 45 state fair trade laws, had supposedly been ticketed for a pocket veto, since Truman had frequently expressed his opposition to the measure in the past.

But Truman apparently decided the bill, though "not the best solution," had some value in reducing unfair competition. And the bill that was "doomed" in the House, "stuck" in the Senate, and "headed for a sure veto" from HST, is now law.

The law makes the non-signer clauses of state fair trade laws valid once more: A manufacturer may sign with only one retailer in a state to fix the price for the entire state. Proponents of the law say it prevents "loss leader" selling by big stores, thus protects small retailers.

Though only an estimated 10% of total retail sales involves "fair traded" items, most drug and cosmetic products and a fair proportion of chemical household specialties are sold under "fair trade" agreements. Drug and cosmetic producers backed the new bill.

Pure Water Makers

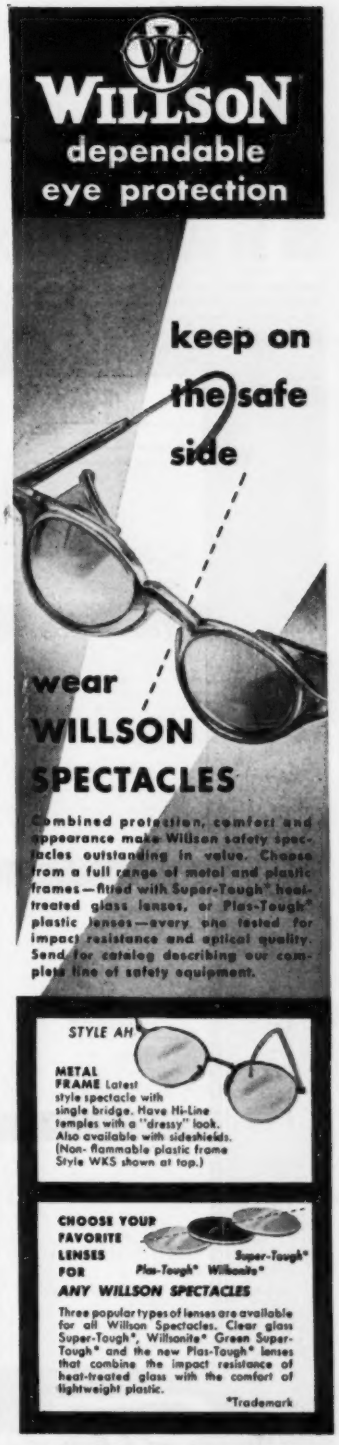
Utilization of ion exchange resins as a handy way to provide pure water for steam irons, storage batteries, and the like is exemplified by Crystal Research Laboratories' (Hartford, Conn.) Deeminac and Felwin Inc.'s (Chicago) Water-Boy, plastic cylinders containing the resins.

Both units employ the monobed variation of Rohm and Haas Amberlite ion exchange resins, and the small devices can produce up to 10 gallons of pure water at about a 6-oz. per minute rate.

Tap water is added to the upper portion of the unit and as it filters through the resin, "distilled" water is produced. A color change in the resin indicates when it is exhausted and should be replaced. The device provides a relatively inexpensive source of pure water for various household and small laboratory uses.

•

Nifty-Whiff Fabrics: Scented sheeting—yard goods with a touch of the flower garden about it—is a reality now. Monsanto Chemical Co.'s Plastic Div.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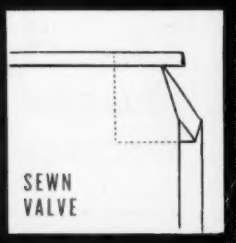

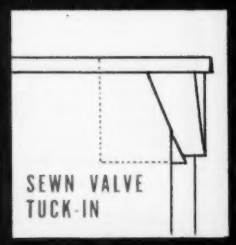

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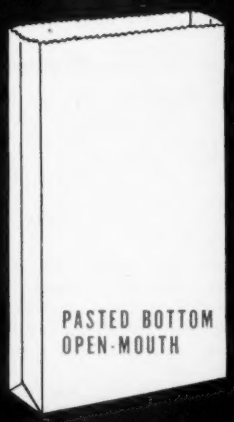

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chemists, nosing into possible procedures to perfume plastics, have come up with a way to make perfumes an integral part of Ultron plastic fabric.

Plastron, Inc., which introduced flower-scented window and shower curtains at the Housewares Show this month at Atlantic City, will market them exclusively. But it promises also to sell the sweet-smelling fabrics as yard goods.

Big problem in the development: To keep the essential oils in the plastic throughout the processing, so that the scent would last. Tests indicate the fabric will retain it for several months.

•

Recent Resin: Rezyl 405-18, a new oil-modified alkyd resin for non-penetrating, self-sealing flat wall finishes is being produced by American Cyanamid Co.

•

Smoke Chaser: Airkem Inc.'s (New York) Smoke Control division, set up to eliminate post-fire smoke odors, now packs its deodorizing chemicals in Plax (Hartford, Conn.) polyethylene bottles.

•

Corrosion Coatings: New maker of phenolic resin coatings for corrosion control is Ric-wil Plastic Coating & Mfg. Corp., Cleveland, Ohio, with plant in Salem, Ind. Two coatings, are offered now, Ricwilite 1060 and Ricwilite 7100, both phenolic resin coatings.

•

Polystyrene Awning: Reverso Products Co. (Brooklyn) is now producing a lightweight awning, Plastic Dome, which consists of an aluminum frame with polystyrene panels to do the light filtering. It is said to be the first use of polystyrene in outdoor applications.

•

Back to the Old Grind: Two new phenolic resins, binding agents for grinding wheel manufacture, have been introduced by the Borden Co.'s Chemical Division (New York). Durite AD-5094, a yellow powder, is primarily for heavy duty wheels; AD-5390 is a liquid, for general purpose wheels.

•

About Finished: Work is nearing completion on the Charlotte, N.C., facilities of the Acme Soap & Chemical Co., an affiliate of the Acme Soap Co., Cambridge, Mass.

•

Valve Contract: A contract for tooling for mass production of the Engstrum non-clogging aerosol paint valve has been awarded to the Engstrum Valve Manufacturing Corp. (Washington, D.C.) According to owner-developer Paul Engstrum, the restricted contract with a Defense Dept. agency carries a high materials priority rating; Engstrum is to make the dies and molds and automatic equipment needed to mass-produce his valve.

•

Silk Soakers: Dexter Chemicals Corp. (New York) has introduced two new silk soaking oils, #42 and #84. Used in standard silk soaking equipment, #42 is recommended for China and Japan silks; #84 for Duoppioni silks.

•

Weed War: Canadian National Railways will be using chemicals this year in its battle against brush and undergrowth along the line's right-of-way. About a quarter of a million dollars will be alloted to spraying a path 100 ft. wide along a 650 mile strip, with the key aim of reducing the fire hazard.

Special equipment, capable of covering about 30 miles a day, will apply 2,4-D, as well as 2,4,5-T. The chemicals, tested last year, are to be tried in different formulations this year to get the cheapest effective method.

•

Peach Saver: Dieldrin, Shell Chemical Corp.'s insecticide, has been accepted for registration by the U.S.D.A. as a control of brood plum curculio on peaches.

•

Silicone Resin: General Electric's Chemical Division has introduced a new silicone resin for class H electric insulation, said to maintain its bonding strength and hardness at temperatures 50-90C above other available resins. New Product, 50% solids, thinned with toluene, xylene, or petroleum, is tabbed SR-98.

•

Pair for Paints: Syntex 141 and Syntex 71 are two new alkyd resins for odorless paint formulation, developed by the Jones Dabney division (Louisville) of Devoe & Raynolds Co., Inc.

•

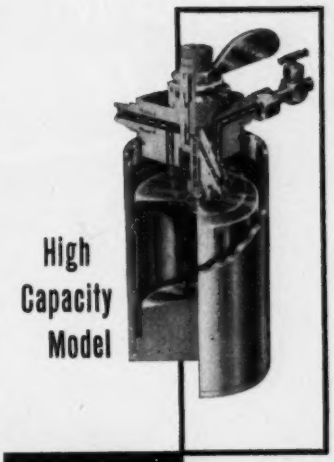
Weed Control: A new preparation for weed control has been introduced by Schering A-G., Berlin. Tradenamed M 52 Liquid, it is methyl-chlorphenoxyacetic acid-based, and is the first MCPA formulation recognized in Germany.

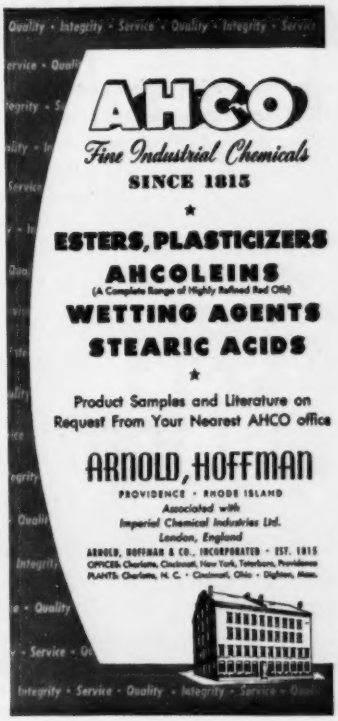
•

New Company: Newton Chemical Co., Newton, N.C. has been incorporated in North Carolina, capitalized at $100,000.

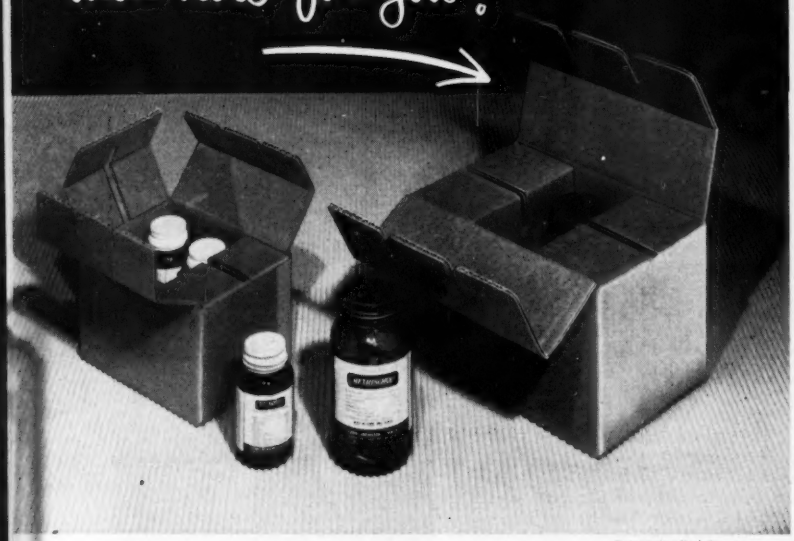
•

Antistatic Study: A seven-man advisory Committee on Static Electricity, formed under the auspicies of the New York section of the American Associa-





there's an idea here for you!



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SPECIALTIES. . . . .

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•

Granulated Fertilizer: The Southern Fertilizer & Chemical Co. (Savanah, Ga.) is now test marketing a granulated-type 5-10-5 fertilizer.

•

Protective Skin: Sealbrite CRC-55 is a new waterproofing and rustproofing compound developed by London Chemical Co. (Chicago). Said to offer long term protection, it is painted, dipped, or sprayed on, dries to a thin, tackless film.

•

Styrene Series: Monsanto Chemicals is producing a new series of water soluble, modified polystyrene resins, for applications in oil, plastics, paper, and paint industries. Series is called Lustrex X-700.

•

Rubber Tile Cement: Pioneer Latex & Chemical Co. (Middlesex, N.J.) is now marketing a new adhesive for rubber tile, Chem-Set, said to permit use of rubber tile on grade concrete. Though the new compound, a latex and vulcanizer formulation, doesn't waterproof the surface, it will not deteriorate in the presence of moisture, and is simple to apply.

•

Stocking Up: The Iowa Division of the Warren-Douglas Chemical Co., Inc., (Omaha, Nebraska) has recently moved into new facilities at Des Moines.

•

New Company: Gulf Chemical Products, Co., Inc., has been organized in Lafayette, La., to deal in sanitary supplies.

•

Cutter Aide: S. C. Johnson & Son, Inc., (Racine, Wis.) is now selling a new wax-type cutting oil for use in automatic screw machines, gear cutting machines, and equipment of that sort. It is said to speed up cutting operations, eliminate smoking, and lengthen tool life.

•

California Ban: The California State Department of Agriculture has banned the use on feed and food crops of two chemical pesticides. Octamethylpyrophosphoramide, commonly

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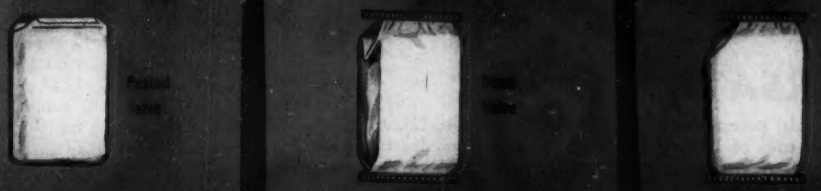

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7-26-52

SPECIALTIES . . . . .

called OMPA, and ethyl thiophosphate have been ruled out, until it is proved that the trace amount of the chemicals taken up by the plants do not constitute a danger to humans or livestock. The chemicals can still be used for cotton, and similar crops not consumed by animals.

•

Dust to Dust: Du Pont's EPN insecticide will be sold as a dust for the first time this season. Heretofore available only as a wettable powder, EPN will be marketed to chemical processors by Du Pont; 2% and 3% dusts have been USDA-approved.

•

Gilsonite Buy: G. S. Ziegler & Co. has purchased the Utah Gilsonite Co., St. Louis. Ziegler takes over the Utah mines of U-G, located in the Uinta Basin, and will continue marketing and mining the trade-named Brilliant Black Gilsonite.

•

Saved for the Pan: A new vaccine that is said to protect chickens against coccidiosis is being introduced by Dorn and Mitchell, Inc. (Birmingham, Ala.). The new inoculum is the development of S. A. Edgar, poultry pathologist at the Alabama Polytechnic Institute.

•

No Mildew: A new enamel incorporating a fungicide is being test marketed by Du Pont. Making use of the fungicide Cunilate (copper-8-quinolinolate) manufactured by Scientific Oil Compounding Co. (Chicago), the new paint is said to halt ceiling and wall mold growths, and to be non-toxic enough to permit use in food processing plants, breweries, and the like. The paint has been tagged Mildew Resisting Packinghouse Enamel.

BOOKS . . . . .

Briefly Listed

THE EXCHANGE OF WATER BETWEEN HYDROPHOBIC LIQUIDS AND AIR, contains data useful in overcoming corrosion and other difficulties in the handling and storage of motor fuels. Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C., $0.50 per mimeograph copy.

RADIOLOGICAL CLOTHING MONITOR, U.S. Chemical Corps., Library of Congress, Photoduplication Section, Washington 25, D.C. Treats radioactive contamination, detection, and measurement. Microfilm, $1.75, photostat, $2.50.

HOW TO GET SEWAGE TREATMENT PLANTS IN OHIO, describes engineering and financial procedures involved in starting a sewage treatment plant plan. Copies may be obtained from the Ohio State Department of Health, State Office Building, Columbus 15, Ohio. $1.00.

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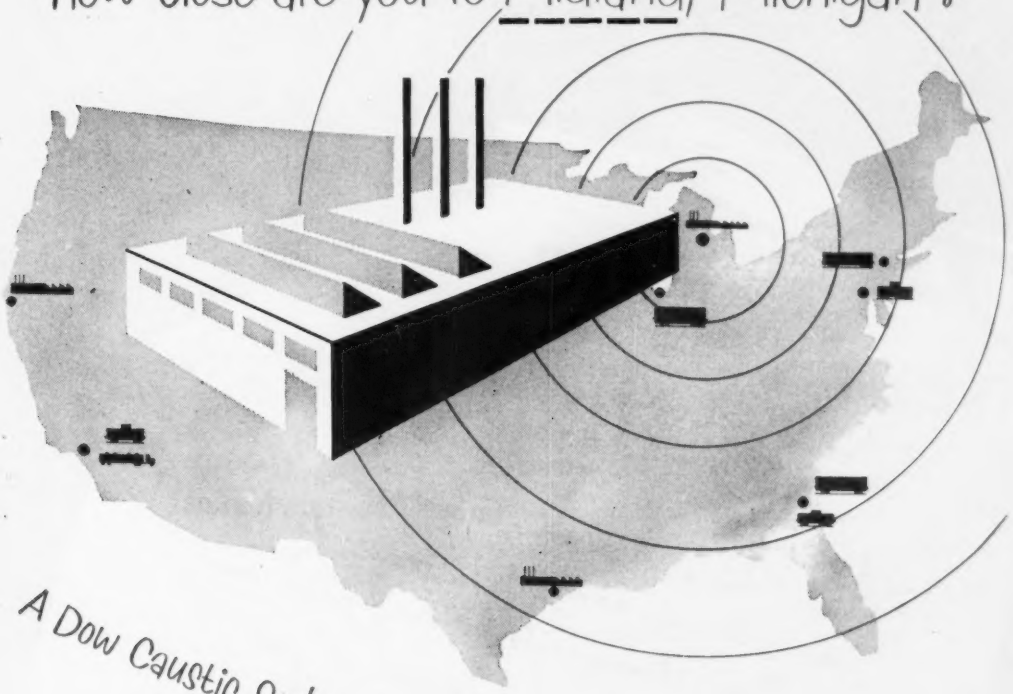

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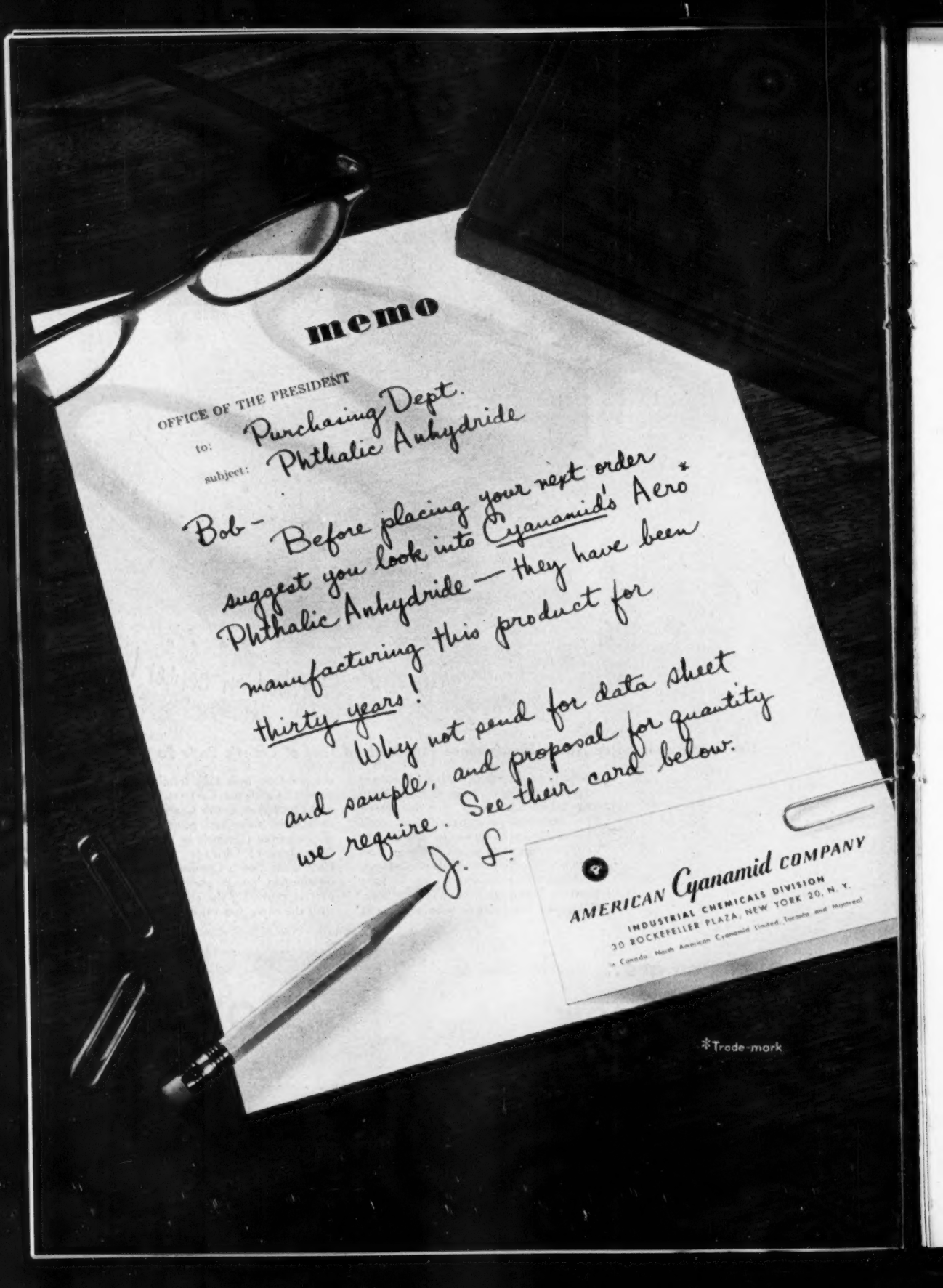
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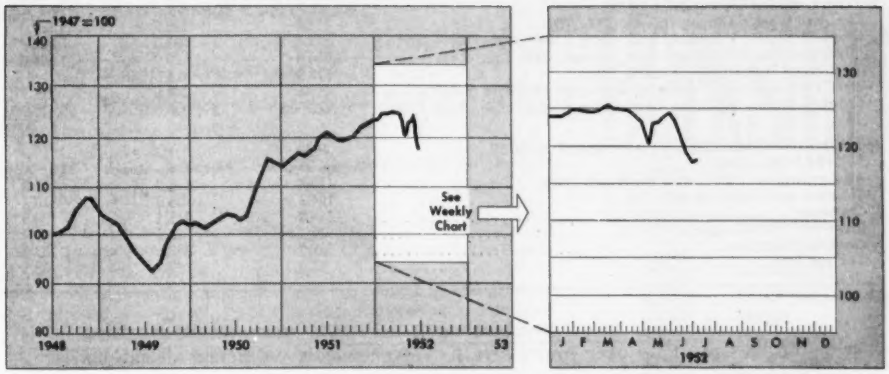
MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

MARKET LETTER

The much-discussed world sulfur shortage is virtually at an end. Although there have been a few sulfur-status followers proclaiming that fact these many months, you can now look for a multitude of proselytes. Reason: Hard facts to substantiate the sulfur-easing are now handily available.

Detailed calculations of present, future "free world" sulfur production were compiled, edited, distributed last week by Freeport Sulfur Co., second largest U.S. producer (number one, Texas Gulf Sulfur).

Some 4 million long tons of the essential yellow chemical (says Freeport's president Langbourne M. Williams, Jr.) will be added to the non-Iron Curtain countries' yearly capacity by 1955. (Output in 1951: about 12 million tons.) U.S. installations will account for 50% of the increase.

But increased production is not solely responsible for the present bridging of the sulfur supply-demand gap (1 million tons a year ago). Credit also consumers' conservation programs, easing in sulfur demand because of general slackening of business.

Pulp manufacturers, second largest sulfur buyers, are using about 10% less sulfur by wise conservation methods, will probably carry on the thrifty practices even when business gets better.

Business may get better in the next six months, but right now some resellers are saying there's more activity in a cemetery than there is in the chemical market places.

Carbon tetrachloride, perchlorethylene, among the solvents, are reported as a "little tight" in some sections of the country. Distributors are doing a bit of business at these prices: Carbon tet, about 10¢/pound; perchlorethylene, at about 12½¢/pound.

In the petroleum field, some high-quality oils and greases will be moving toward France later on this year.

Mutual Security Administration has granted authorization to that country to use $1 million of MSA funds to buy U.S. petroleum lubricants.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Week's Output Index (1947=100)	118.7	118.2	119.0
Chemical Week's Wholesale Price Index (1947=100)	103.1	103.2	107.3
Bituminous Coal Production (Daily Average, 1000 Tons)	1,044.0	1,120.0	1,608.0
Steel Ingot Production (Thousand Tons)	318.0(est)	316.0(act)	
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	249.6	247.5	238.7
Chemical Process Industries Construction Awards (Eng. News-Record)	$5,926,000	$16,003,000	$5,475,000

MONTHLY INDICATORS—WHOLESALE PRICES (1947-'49=100)	June Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	112.4	113.0	116.2
Chemical and Allied Products	104.3	104.3	110.2
Chemicals	114.9	115.1	120.9
Drugs and Pharmaceuticals	92.2	92.2	95.7
Fertilizer Materials	109.9	111.5	103.5
Oils and Fats	52.0	47.2	88.5

Another government agency, DPA, is just about reaching the bottom of its once impressive list of chemicals requiring allocations authorization.

Polyethylene "decontrol" is scheduled for early August. This leaves only two to go; methylene chloride and thiokol (*CW*, Market Letter, June 21). Reasons for polyethylene controls-shucking: ample supplies because of expanded production, falling off of military requirements. This is how the plastic has been allocated:

	April	May	June
	(percent of production)		
Military	32.0	21.4	20.0
Section 19, M-45*	39.0	57.6	57.7
Essential civilian	29.0	21.6	22.5

*Under this section, the balance of polyethylene, after military and essential civilian programs are satisfied, is distributed to other consumers on a historical-purchase basis.

Castor oil consumers, processors are hailing a further easing of Government restrictions on its uses. Increases from the 60% to the 80% category include the following class uses: textiles; imitation leather and coated fabrics; brake lining; paint, varnish, lacquer resins and vehicles; pigments and dyes; lubricating grease; plastics.

Department of Agriculture officials say changes are in line with industry suggestions.

By late last week supply of argentine casein was hobbled by a double set of hamstringing regulations; U.S. import restrictions, Argentine holdup of export permits.

Higher price for the material is the result. A 1¢/pound boost hikes the imported casein to about 17½¢.

And the President touched on the dangers of restricting imports in his mid-year economic report sent to Congress last week. He said that if foreign nations—because of trade barriers—are unable to earn dollars to pay for essential commodities which they now buy in the dollar area, they may look for other markets, including those in the Soviet orbit.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending July 21, 1952

	Change	New Price		Change	New Price
UP					
Potassium muriate, Trona (cal), unit-ton	.025	.53	Mercaptobenzothiazyl, disulphide	.015	.42
Mercaptobenzothiazole	.01	.34			
DOWN					
Naphthalene, crude, imp.	.0025	.045			

All prices per pound unless quantity is stated

Scramble In Polyols

Glycerine producers, analyzing sorbitol producer's analysis of dwindling stocks, see little cause for alarm.

Reasons: Business is slow; dip is partly seasonal; synthetic glycerine strike is over.

One hard fact: Competition for the billion pound polyol market, now rough, is bound to get rougher.

Keenly competitive is perhaps the best description of the big and varied non-antifreeze market for polyols. (Ethylene glycol, with the exception of small amounts of propylene glycol, has the polyol antifreeze business about sewn up.) This is in sharp contrast to the situation that obtained for years when glycerine from the soap kettles was top dog in the field, with few contenders.

Now not only are natural and synthetic glycerine vying for outlets, but pentaerythritol and sorbitol, greatly expanded last year, are also bidding for a bigger slice of the polyol-consuming industries' dollars. And last week, Atlas Powder Co., largest U.S. producer of sorbitol, digested the statistics released by the Bureau of Census on glycerine stocks, distributed an analysis of what they mean to polyol consumers.

These are the facts Atlas presented:

- May statistics show only 57 million pounds of glycerine on hand at the end of the month—some 5 million pounds under April's 62 million.
- This drop is about 10 times the reduction between April and May of last year.
- Saponification grade glycerine (crude) is currently pegged at about 24¢/pound. But some consumers are having difficulty buying it at 27-28¢.

The Atlas analysts interpret this to mean:

- An immediate and rapid decline in glycerine stocks is certain. Glycerine stocks will probably be down to 45 million pounds by the end of this month—nearly an all-time low—with prospects of going even lower.

This figure takes into consideration an estimated 14 million pounds production loss by the end of July: About 6 million because of soapers' normal vacation shut-down periods, the balance (7-8 million pounds) because of the strike at the only synthetic glycerine manufacturing plant – Shell Chemical's Houston installation.

- A rise in the price of glycerine is imminent. One factor: The 27-28¢ price of crude is too high for refiners to buy, convert and sell at the 34½¢ ceiling for refined. (There should be at least a 10¢ spread between crude and refined to permit profitable operation.)

Limited Agreement: Although glycerine producers agree that some points in the interpretation are incontestable, they don't subscribe to the whole thesis. They agree that the trend in glycerine stocks is downward, concur with the reasons given. They also admit the possibility of the low 45 million pound level predicted. But this they do not regard as of alarming significance.

They point out that it's normal for stocks to be down at this time of year because of vacations. And with Shell's synthetic glycerine output off the market, there is bound to be less glycerine in stock. Too, glycerine disappearance follows the general index of business activity closely—and business in the chemical process industries hasn't been too brisk of late. If demand for glycerine had been greater over the past few months, there would be more cause for concern now, glycerine producers declare.

At any rate, they also say, the downward trend in glycerine stocks will halt where it is, level off, probably turn upward by September.

As to the implication that glycerine may be getting too expensive, glycerine people say that has the familiar ring of the old cry that glycerine raw materials are "erratic" pricewise. They admit, of course, that they can't boast they will never be caught in a raw material squeeze. But Atlas can, since 20 million pounds of sugar (sorbitol raw material) are available annually.

Push for Top: And Atlas has more to boast about than its enviable raw material position. Sorbitol's rise has been striking among important polyhydric alcohols (glycerine; pentaerythritol; ethylene, diethylene, triethylene, propylene glycols). An improved catalytic process now pours out about 50-60 million pounds of sorbitol a year (capacity is estimated at about 75 million). The company is at present its own biggest customer, uses sorbitol to make a large number of organic esters.

But if it is to sell more sorbitol to the recognized polyol markets (nearly

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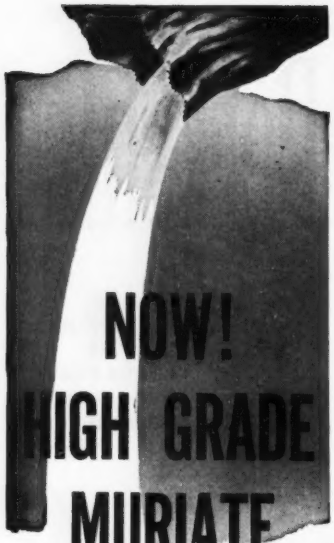

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a billion pounds), even at a price of 15¢ vs. glycerine's 34½¢, it must corral a greater share of the time-tested glycerine outlets. Here's a CW comparison of the relative end uses of these two polyols in million pounds (excluding Atlas' captive uses):

Market	Glycerine	Sorbitol
Alkyd resins, ester gums*	70	5-6
Tobacco	30	10
Explosives*	30	3-4
Cellophane	26	3
Cosmetics, dentifrices	12	4
Other drugs, pharmaceuticals	12	3-4
Misc. (food, glassine paper, etc.)	5	½-1
Total	185	28-32

Strike-Out: Biggest chunk (7-8 million pounds) of the estimated 14 million pounds of lost glycerine production in the last two months is attributed to the seven-week-old strike at Shell Chemical's synthetic glycerine plant. And the Atlas analysis mentions that "as of July 1" there was no indication of settlement in the near future.

But labor unions are unpredictable and the strike was settled last week temporarily, under a 60-day interim agreement.

Shell had been producing about 4 million pounds a month before the shutdown and some glycerine consumers may have rosy hopes that Shell will immediately pick up where it left off, start producing "tomorrow." A more realistic view is that Shell won't reach peak production before the middle of August. Some glycerine though, from left-over stocks at the Texas plant, will start to hit closed-contract markets in about 10 days.

But whether the "strikers" go out again or stay at work, whether renewed activity by soapers stems the downward trend of stocks and upward trend of price, this much is certain: A still keener battle for polyol markets is shaping up.

Penicillin Enigma

An expansion goal for penicillin? Six hundred trillion units by 1955? The incredulous howl from penicillin producers should certainly reach Washington ears by this week.

To say industry men are surprised at DPA's action in announcing this capacity goal for penicillin is to put it mildly—they're downright aghast.

One must go back a couple of years to explain the yelp from producers. In early 1950 penicillin was described as "long." A few weeks before the outbreak of Korea, a buying wave started. While most antibiotic makers were inclined, in the beginning, to treat the rising swell of demand as "temporary," it actually resulted in a shortage in penicillin that lasted well into 1951.

And producers continued to push penicillin output. Improved technology boomed yields. All this on expected government orders for:

- Military procurement,
- Civilian defense,
- ECA purchases.

All the orders did not materialize, in effect, left producers with enough of the wonder drug in stock to almost constitute a "glut."

What's Cooking?: The picture today, according to many major producers is this: Capacity to produce penicillin has already been increased 5-6 fold over 2-3 years ago; the export market ($48 million dollars worth in 1951), ECA purchases are drying up; military demand is taking some penicillin, but not much; civilian defense orders are not definite.

It's a cinch DPA's expansion goal announcement has a lot of penicillin people distraught. Typical reactions to the government's 600 trillion-unit target range from a perplexed, "What'n hell are they driving at down there in Washington?", to an indulgent interpretation of the action—"Perhaps the announcement is a mistake; it sounds like an edict that should have been issued back in March 1951."

No Boner: But DPA tells CW that there has been no error. The statement is new. DPA goes on to explain that its expansion goal announcements are, for the most part, general statements of future plans. In many cases, too, the expansion goal capacity has almost been reached—as is the case with penicillin.

And, adds the agency, the target date is 1955. We must take into consideration the possible military, civilian needs in the event of "all-out war."

Whether such reasoning will be enough to induce producers to again start pouring out penicillin without firm government orders is doubtful.

They remember too vividly sky-high inventories, the specter of outdates.*

* Quietly coming up on the outside is pentaerythritol. Of an estimated 40-48 million pounds yearly production, alkyd resins take 30-35 million pounds, explosives, about 18.

* Penicillin can only be stored a limited time, usually 1-3 years, dependent on the type.

PICTURES IN THIS ISSUE:

Cover (top) — Aniline Inc.; Cover (bottom) & pp. 54-55 — McGraw-Hill; pp. 13, 31 and 35 — Wide World; p. 63 (bottom 2) — Albert Rothschild Photo.

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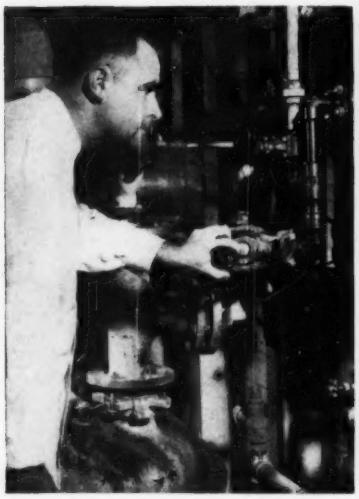


1 INITIAL REACTION takes place in a glass-lined vessel.

2 GLOBALINE precipitates, is separated in a Nooch filter.

3 IT IS THEN DRIED for 48 hours at 110 F in a steam heated drier.

RESEARCH DIRECTOR, Henry Marks (left), talks shop with plant manager, Dave Crampton.

PRODUCTION . .

Tablets from Jersey . . . . . Safe Water in Korea

Developed as a replacement for Halazone (chlorine) tablets at the end of World War II, practically a forgotten chemical for several years thereafter, globaline was taken out of mothballs at the outbreak in Korea, is just now coming into its own as a commercial chemical. Production has skyrocketed some 400-500% in the past few months.

Portable Problem: Providing troops in the field with sanitary drinking water has always been a problem. Foot soldiers in both wars relied on a Halazone tablet in their canteens to kill the bacteria. But though adequate in many respects, it is ineffective against the tough amoebic cyst—cause of amoebic dysentery.

A group of Harvard researchers went to work on a replacement and, in 1945, emerged with tetraglycine hydroperiodide which they promptly dubbed globaline. Evaluation at Harvard showed it filled the bill.

The development, however, came too late to be of any value to the G.I.'s of World War II. Not until 1950 did the government send out a procurement order for globaline. And even then it was approved for limited use only.

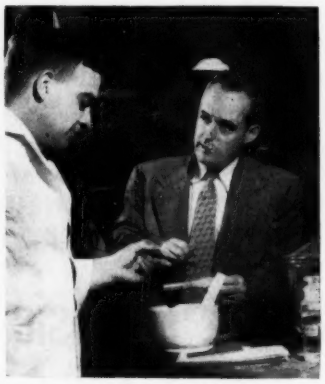
Extensive tests in the field established globaline's military value, and several firms are now in commercial production. Among the bigger manufacturers: Abbott Laboratories (Chicago), Lambert Pharmacal Co. (St. Louis), Smith, Kline and French (Philadelphia) and Harrison Products (San Francisco).

Production Pioneer: Last week, the CW camera visited the Belleville (N.J.) works of Wallace and Tiernan to see how globaline is made. For though its capacity (2,500 lbs. a week working on a one-shift basis) places it among the smaller producers, Wallace and Tiernan pioneered production techniques. And it still supplies glycine for some of the bigger manufacturers.

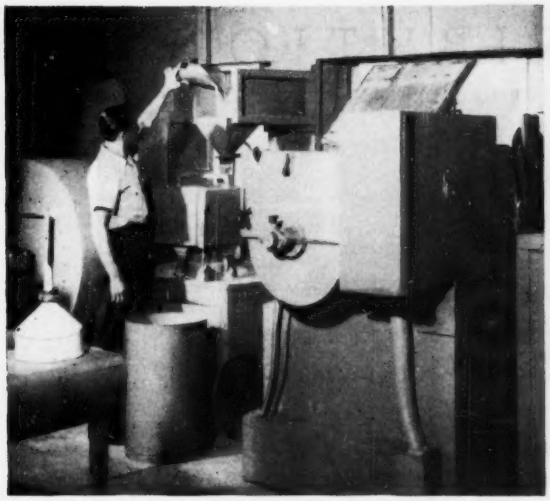
The process for preparing the globaline pills consists of reacting a solution of iodine and potassium iodide with glycine. Refluxing for an hour completes the reaction and splits out water.

The reaction mixture, a slurry of globaline in solvent, is filtered. Separated solvent is recycled and the solid globaline is dried for 48 hours at 110 F. Then the dried product is blended with sodium acid phosphate and talc, formed into tablets and placed in bottles.

Each tablet (110 milligrams) is capable of purifying one G.I. canteen of water. Multiplied by the canteens consumed by an army in the field, that adds up to a nice piece of business for the industry. But it's one whose future is tied to the size and missions of the army.



HENRY MARKS and his associate, Robert Day, huddle on further research.



4 GLOBALINE IS GROUND, sifted, then blended with sodium acid pyrophosphate and talc before tabletting.

5 THIS STOKES MACHINE turns out 350 tablets a minute. All steps after the filtration are carried out in air conditioned rooms.

6 WALLACE AND TIERNAN CHEMIST titrates for iodine on the finished product. Pure globaline assays 40% iodine.

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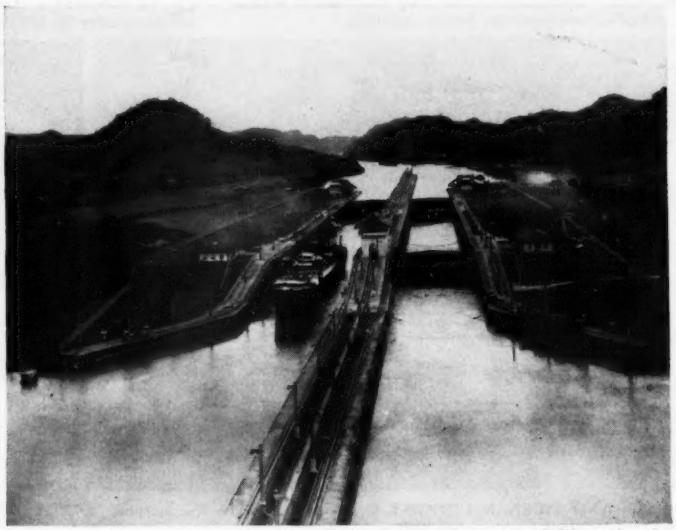

COASTAL AND INTERCOASTAL SHIPPING: Sixty-five years of life under the Interstate Commerce Act have put the shoe on the other foot.

Facelifting the Regulations

A bright spotlight has been focussed on the tangled network of government transportation regulations. It comes in the form of a survey report by the Policy Board of the powerful Transportation Association of America, and industrial planners are reading its recommendations with more than normal interest. Reason: the suggested changes stand a good chance of becoming law because the House commerce committee itself was instrumental in setting up the three-year study.

For the chemical process industries, this is important. In their never-ending search for domestic natural resources to be spun into their chemical web, they have managed to become the most scattered—albeit integrated—of the major industrial groups. Brine wells in Michigan, sulfur domes in Texas, West Virginian coal mines and borax deposits in the deserts of California—all attended by chemical process plants—are but a few of the threads which make up the fabric of the American chemical industries.

But taken altogether, they form only the warp of the cloth. Equally important is the nation's complex transportation system—the weft which holds the loose threads together. For this reason, the chemical group had

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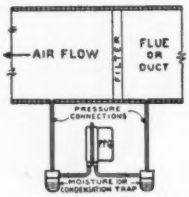

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a vital stake in the maintenance of a vigorous, healthy American transport industry. It is toward this same end that the TAA report is aimed.

It would be a safe statement that no other dollars spent by the chemical process industries—except taxes— are more subject to the dictates of government regulations than those which form their contribution to the $50 billion spent by the nation on transportation costs each year. Many of these laws are now out-dated; in many ways, for instance, the railroads are still regulated as if they still had an absolute monopoly on land transport. But as newer statutes are added—without a clear-cut basic plan—the carriers are becoming enmeshed in a tangle of laws which amount more and more to outright state control.

Joint Effort: To avoid such a fate, the TAA instituted its study project. The goal was to give the industry a freer competitive atmosphere, recognizing the modern forces now at work, yet retaining enough government regulations to prevent ruthless competition from eventually hurting the public by crippling any particular portion of the industry.

Eight panel groups were required to round out all possible views on each specific question. Six of these panels represented the various major types of carriers: air, highway, railroad, pipeline, waterway, and freight forwarder. The other two presented the views of the users—the shippers and receivers of freight—and the investors who have supplied the billions of capital necessary for the creation and expansion of the transport services.

As might be anticipated, few if any of the suggested solutions were unanimously agreed upon by these divergent groups. The final report gives a majority opinion, with ample coverage of minority viewpoints. The congressional committees will thus be given the total picture—as expressed by the best authorities available on all phases of American commerce.

Changing Times: Typical topic in the report is that section of the Interstate Commerce Act familiarly known as the "long-and-short haul clause." Its recommended repeal is bound to kick up a storm of oratory in Congress next year; for 65 years it has been a political football. The chemical process industries, with numerous long cross-country movements built into its established commercial structure, will be particularly affected.

The clause prohibits the railroads from charging less on a long haul than the sum of the shorter intermediate hauls on the same line. Originally, this rule was to prevent the roads from gouging the short-distance shippers (who often had no other available means of transportation) and using the extra revenue to balance the losses experienced from unnaturally low rates on the long hauls where stiff competition was being met from other railroads and water carriers. The law, in taking away from the "robber-baron" railroads a handy double-edged sword, was obviously designed to protect the railroads' victimized customers.

A measure of how drastically the times have changed is revealed by the fact that today's "user" panel,* on a split vote, recommended the repeal of the clause. Public and private trucking systems have removed the railroads' monopoly on short-haul routes, and ICC decisions during recent years have effectively changed the basic intent of the law. Instead of being a ceiling on short-haul schedules, it is now an effective floor under long-haul rates—preventing the railroads from "threatening the extinction of legitimate water carriers."

That the repeal of this clause would probably result in lower long-haul freight rates—especially on the critical coast-to-coast routes—is shown by the division of panels on the subject. The railroads, the investors, and the users outvoted the waterway and highway carriers. The airlines and pipelines chose not to oppose, although they were unwilling to go on record as approving, and the freight forwarders abstained altogether.

Owners of coastal shipping fleets are especially concerned. Their spokesmen point out that before the war they were operating nearly 200 vessels, but that this has already been cut down to 60 ships by railroad competition. They fear that their "extinction" is not just a minor possibility as a result of the clause's potential repeal.

Clearing the Air: The long-and-short-haul clause is one of many important questions considered by the panels. Added together, they amount to a complete fresh look at the American transportation problem. It is the first time that it has been studied from all sides at the same time, and it is inevitable that many time-encrusted inconsistencies will be swept away when exhumed for Congressional scrutiny. An immediate result of such action will be to still the clamor for outright state ownership as the logical next step based on the current failure of blindly applied regulations and sub-

* Chairman: Charles Braden, Traffic Manager of National Distillers Products Corp. (New York).

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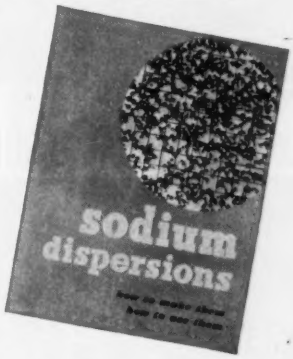

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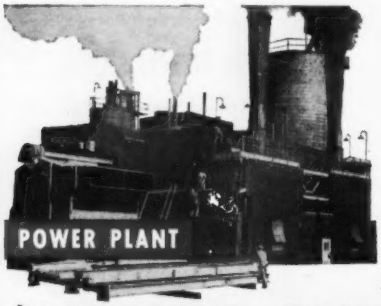

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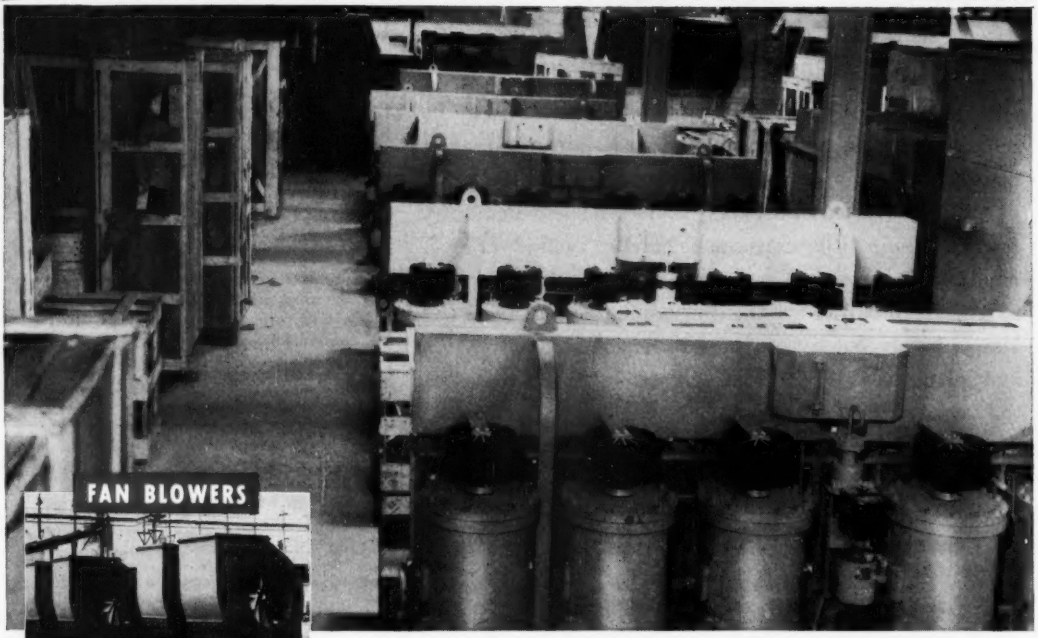

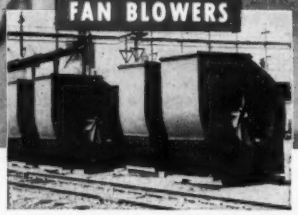

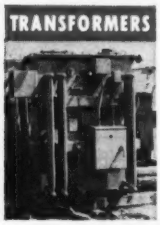

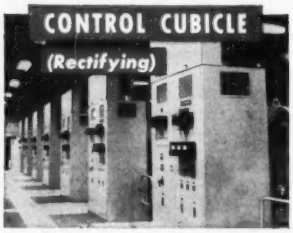

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sidies to unsnarl the carriers' manifest difficulties.

If for no other reason than this last, the chemical process industries have good cause to doff their collective caps in deference to the TAA and their associates in the transportation field.

•

West Coast Outlet: This month sees the opening of a San Francisco office by the Archer-Daniels-Midland Co. It will handle ADM's complete line of oils and fatty acids. Its service area will cover the northern half of California, taking over the sales effort formerly handled by B. F. Dougherty and A. J. Lynch and Co.

Bisulfide Bow-out

In big and little ways, the steady swing from sellers' to buyers' market is having its effect on the chemical distribution pattern. Case in point is the decision by Dow Chemical to stop its production of carbon bisulfide at Midland, Mich. Dow was never a very large factor in the bisulfide marketplace—it used most of its output at the source in making carbon tetrachloride—but during the heyday of the sulfur shortage, it would have been impossible for its customers to have switched to any other producer on short notice.

Tied in with Dow's decision on carbon bisulfide is its plan to put the burden of its future carbon tetrachloride production on its Freeport, Texas petro-chemical plant.

•

Solid Fuel: The Celanese Corp. has begun full-scale production of trioxane, the solid fuel used by the armed forces for heating field rations. The new production unit, located at Bishop, Texas, necessitated an expanded Celanese capacity for paraformaldehyde, the major raw material in the formulation of the fuel.

•

Navy Help: A booklet entitled "Selling to Navy Prime Contractors" is now available through Navy purchasing offices and the Government Printing Office in Washington, D.C. It is specifically designed to help small manufacturers seeking subcontracting work on Navy requirements.

Ceramics for the Hobbyist

BEING DELUGED BY A FAD is a pleasant experience for any industrial firm—but a rather rare one in the chemical process industries. Pictured above is what happened when Cleveland's Ferro Corp. found itself riding the crest of the current interest in the ceramic arts as a hobby outlet. Small orders from individuals, schools, and art supply stores for Ferro chemicals, clays, frits, colors, glazes, etc., grew so numerous that Ferro had to form a Ceramic Arts Supplies Division to handle the flood. Francis Emmert set up shop in this combination retail, wholesale, and mail-order store in Bedford, Ohio.

The new merchandising division also handles all the accessories and equipment needed by the amateur potter, including kilns, ball mills, potter's wheels and hand tools. But this particular customer hasn't quite reached that level—all that she wanted her father to buy was some colored modeling clay.

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Control of air pollution

seven panels of experts offer well-checked facts and methods

Here is a systematic presentation of some of the most useful information that has been amassed about the pollution of air; its effects on human, plant, and animal health; the measures that are being taken to control it successfully; the legal and administrative problems that are being overcome in connection with pollution prevention and control.

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Proceedings of the United States Technical Conference on Air Pollution

847 pages, 7½x10, 285 illus., 85 tables, $12.50

These are the specific, authoritative facts presented at a top-level government conference on pollution—a conference that brought together experts in every phase of the problem. Here is the picture of how contamination of the air affects humans, livestock, and crops, and of which chemicals are really dangerous and which are not. Here are detailed analyses of different contaminants, with methods for finding the nature and degree of pollution. Included is a discussion of the very latest equipment for pollution control, with an explanation of how each kind works and what its limitations are. The section on instruments describes and explains best practices of measuring the kind and degree of pollution. One section covers the legal problems involved in drawing up and enforcing pollution control statutes. The interrelation of weather and climate and pollution problems is fully treated.

Sponsored by the Interdepartmental Committee on Air Pollution. Chairman: LOUIS C. McCABE, Formerly Chief, Office of Air and Stream Pollution United States Department of the Interior.

A Few of the 97 topics covered:

- Fluoric contamination of livestock
- Pollution from mine refuse piles
- Sulfur dioxide and conifers
- Relation of particle size to pollution
- Physical properties of aerosols
- Use of the electron microscope
- Use of the midget impinger
- Chemical analysis of pollutants
- Fluorometric analysis
- Spectrographic analysis
- Odor control practices
- Catalytic combustion of hydrocarbon vapors
- Dry fibrous filters
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Centrifugals, Bird 48"; Rub. Covered. First Machinery, 157 Hudson St., N.Y. 13, N.Y.

Colloid Mill Charlotte No. 20 used only few hours. Cast steel Rotor & Stator. Bargain. L. Stanhope, Rosemont, Penna.

Construction Centrifuge—1—Sharples #16 Motor Driven, Open Type, Stainless Steel. Contact: R. P. Scherer Corp. 9425 Grinell Ave., Detroit 13, Mich.

Dryer, Vacuum Shelf, 20 shelves, 59 x 78, pump, cond. (6). Consolidated Products, 18 Park Row, N.Y. 38.

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Filter Press, 18" x 18", Sperry, iron, P & F, 11 chambers. Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30"x30", iron, Sperry, steam heated, 30 chambers. Consolidated Products, 18 Park Row, N.Y. 38, N.Y., Barclay 7-0600.

Filter Press, 30" x 30", Aluminum, 45 Chambers. Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 42" x 42", iron, Shriver, 18, 27, 36, 54 chambers (12). Consolidated Products, 18 Park Row, N.Y. 38.

Filter Presses, all sizes and types. Process Industries, 305 Powell St., Brooklyn 12, N.Y.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Granulator, Allis Chalmers, Ball, 4'6"x7', Iron lined. Used 100 hours. Consolidated Products, 18 Park Row, New York 38, N.Y. BA 7-0600.

Kettles, S/S, 300 gal. and 200 gal., 100#, W. P. Consolidated Products, 18 Park Row, N.Y. 38.

Mill, New Rubber Mills, 6x12, 6x14, 6x16"; Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

Mills, Raymond #5047 & 5057, High Side Roller, (2). Consolidated Products, 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22', 5'x20', 4'6"x18'6", 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, New York 38, N.Y.

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Mixer, Lab, BP Vacuum, 7½ gal. jktd, MD. Comolete. Eagle Industries. 108 Washington St., NYC.

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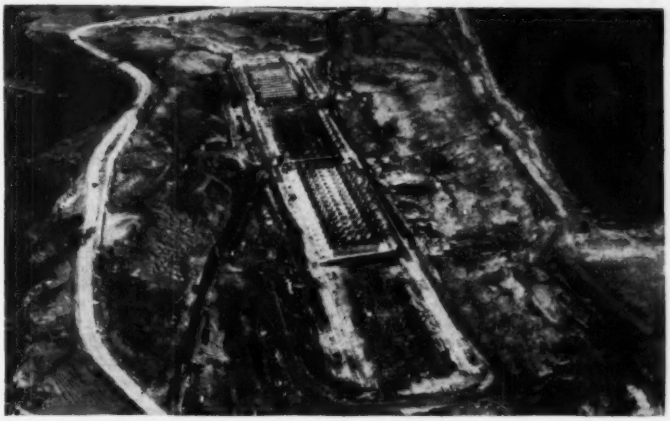

Ready for Delivery

NEW YORK EXPORTERS and importers will remember that it was five years ago this fall that old Pier 57, at the foot of 15th St., burned to the water line. Its reinforced-concrete replacement, shown under construction in the above picture, is now nearly completed, but it is 35 miles away from Manhattan Island. Sometime late this month it will come floating down the Hudson—all 75,000 tons of it—in three gigantic sections, each nearly the length of two city blocks. The building of these concrete boxes amounts to quite an engineering feat. Merritt-Chapman & Scott found an old, abandoned clay pit (*below, top*), and pumped it dry to form the "world's largest natural drydock" (*below, bottom*) over a half-mile long. When the boxes are completed, a channel will be cut between the pit and the Hudson, floating the concrete structures for their trip downstream. Interesting footnote: the anti-pollution program in the New York area was one reason for the decision to make it an all-concrete pier. Marine borers have heretofore been unwilling to live in the inner-harbor waters, but as the clean-up progresses, they are expected to start attacking the wooden piles now protected by industrial wastes.

BOOKLETS . . . . . .

Chemicals

Hydrogen Peroxide

8-p. technical bulletin entitled "'Albone' 35 Hydrogen Peroxide" discusses properties and applications of 35% hydrogen peroxide. Included are control of reactions and decomposition, methods of analysis, packaging information, and a section on bleaching. E. I. du Pont de Nemours Co., Wilmington 98, Del.

Carbon Black

8-p. brochure describing concentrated carbon black dispersions in a variety of plasticizers and solid resins. Contains technical data and suggested application of each disperson. Peerless Printing Ink Co., Philadelphia 34, Pa.

n-Butyl Alcohol

4-p. technical bulletin includes chemical, physical, and physiological properties, solubility and shipping data, and applications of n-butyl alcohol. Carbide and Carbon Chemicals Co., 30 East 42 St., New York 17, N.Y.

2-Ethylhexanol

4-p. technical bulletin lists physical and chemical properties and shipping data. 2-Ethylhexanol is used as a solvent, chemical intermediate, and in photographic developing. Carbide and Carbon Chemicals Co., 30 East 42 St., New York 17, N.Y.

Castor Oil

4-p. technical data report describing formulation, properties, and uses of styrenated dehydrated castor oil. Monsanto Chemical Co.'s Texas Division, Texas City, Texas.

Hexachlorophene

Revised bibliography of the literature on G-11 (R) brand of hexachlorophene, contains references and abstracts of 68 articles and abstracts of 19 patents, all giving information on the compound and its use as a germicide in the presence of soap and synthetic detergents. Sindar Corp., 330 West 42 St., New York, N.Y.

Equipment

Ammonia Refrigeration Compressors

16-p. bulletin containing specifications, pictures, and descriptions of different units. Request on company letterhead. Worthington Corp., Harrison, N.J.

Foamglas

16-p. booklet entitled "Specifications for the Application of Foamglas, the Cellular Glass Insulation, in Low Temperature Space Installations" includes information on applications, properties, and illustrations of Foamglas. Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa.

Welding and Coating

12-p. catalog outlining Metalweld's protective coating, rubber lining, metal-spraying, welding and sandblasting services for industry, and concrete demolition. Metalweld Inc., Philadelphia 29, Pa.

Spray Nozzles

40-p. bulletin describes industrial spray nozzles for commercial and industrial processes. Data giving dimensions and illustrations are included. Request on company letterhead. Binks Manufacturing Co., 3122 Carroll Ave., Chicago 12, Ill.

Return Sludge Control

4-p. data sheet describes how modern instrumentation controls air and return sludge in municipal and industrial sludge plants. The Foxboro Co., 26 Neponset Ave., Foxboro, Mass.

Combustion Tube Furnaces

4-p. bulletin containing illustrations and tables on combustion tube furnaces. Includes dimensions, specifications, maximum safe working temperatures, and shipping weights. Hevi Duty Electric Co., Milwaukee 1, Wis.

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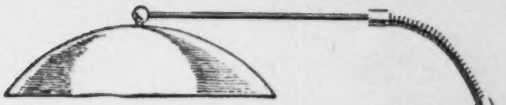

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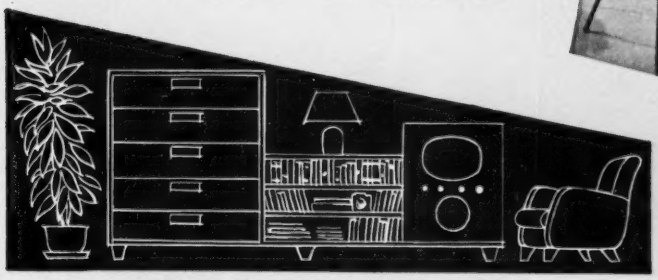

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Now available to industry!
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$CH_2=CHCHO$
FOR:
Pharmaceuticals—methionine, 2-amino-pyrimidine, folic acid, and substituted quinolines.
Odorants—by Diels-Alder condensations.
Coating Resins—reaction with urea, thiourea, and polyhydric compounds.
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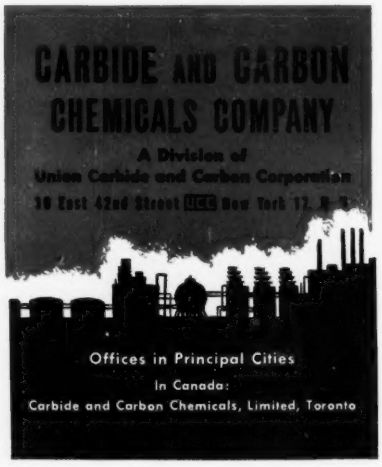
$CH_2=C(CH_3)CHO$
FOR:
Copolymers—with acrylonitrile, acrylic esters, and styrene—they have high softening points and good solvent resistance.
Resins—for impregnated fabrics, linoleum, and adhesives.
56.06 ..... Molecular Weight 70.09
0.8427 ..... Specific Gravity at 20/20°C. 0.8474
52.6°C. ..... Boiling Point at 760 mm. Hg ..... 68.0°C.
215 mm. ..... Vapor Pressure at 20°C. ..... 120 mm.
<0°F. ..... Flash Point (Cleveland open cup) ..... 5°F.
20.8% by wt. ..... Solubility in Water at 20°C. ..... 5.9% by wt.
6.8% by wt. ..... Solubility of Water in at 20°C. ..... 1.7% by wt.

ACROLEIN and METHACROLEIN are highly reactive intermediates. They undergo reactions characteristic of both unsaturated compounds and aldehydes. The conjugation that exists between the double bond and the unsaturation of the carbonyl group increases the reactivity of both groups. These groups can be made to react either simultaneously or individually—the ethylenic groups with halogens, halogen acids, 1,3 dienes, alcohols, and mercaptans—the aldehyde groups with anhydrides and dibasic organic acids, Grignard reagents, alcohols, and HCN. Acrolein and methacrolein are shipped containing 0.1 per cent hydroquinone to inhibit polymerization.

For further information on either of these materials call or write the nearest Carbide and Carbon Chemicals office *today*. Ask for the technical bulletins "Acrolein" (F-7389) and "Methacrolein" (F-7620). These bulletins will provide you with additional data on the physical and chemical properties of acrolein and methacrolein. They will also serve as a permanent reference for your work.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